TRANSACTIONS

OF THE

OTOLOGICAL SOCIETY

VOL. I

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TRANSACTIONS

OF THE

OTOLOGICAL SOCIETY

VOL. I.

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TRANSACTIONS

OF THE

OTOLOGICAL SOCIETY

OF THE

UNITED KINGDOM

VOL. I

FIRST SESSION, 1899–1900

WITH LIST OF OFFICERS, MEMBERS, ETC.

EDITED BY

CHARLES A. BALLANCE, M.S., F.R.C.S.

AND

ARTHUR H. CHEATLE, F.R.C.S.

LONDON

J. & A. CHURCHILL

7 GREAT MARLBOROUGH STREET

1900

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OFFICERS AND COUNCIL

OF

THE OTOLOGICAL SOCIETY OF THE UNITED KINGDOM.

President.

SIR WILLIAM DALBY.

Vice-Presidents.

URBAN PRITCHARD. THOMAS BARR.
GEORGE FIELD.

Hon. Treasurer.

ALPHONSO ELKIN CUMBERBATCH.

Hon. Librarian.

EDWARD CRESSWELL BABER.

Hon. Secretaries.

CHARLES ALFRED BALLANCE.
ARTHUR HENRY CHEATLE.

Council.

T. MARK HOVELL. PETER McBRIDE.
VICTOR HORSLEY. WILLIAM MILLIGAN.
EDWARD LAW. ARTHUR SANDFORD.

LIST OF MEMBERS OF THE SOCIETY.

Honorary Member.

Professor ADAM POLITZER, Vienna.

EXPLANATION OF ABBREVIATIONS.

P = President.	*L* = Honorary Librarian.
VP = Vice-President.	*C* = Councillor.
T = Honorary Treasurer.	*S* = Honorary Secretary.

* = Original Members.

ABBOTT, FRANCIS CHARLES, B.Sc., M.B., M.S., F.R.C.S., 44 Welbeck St., W. Aural Surgeon St. Thomas's Hospital. *Elected March* 5, 1900.

* *L* BABER, EDWARD CRESSWELL, M.B., 46 Brunswick Square, Brighton, and 57 Wimpole St., W. Surgeon Brighton, Hove, and Sussex Throat and Ear Hosp.

* BALL, JAMES BARRY, M.D., 12 Upper Wimpole St., W. Physician Throat, Nose, and Ear Department, West London Hosp.

* *S* BALLANCE, CHARLES ALFRED, M.B., M.S., F.R.C.S., 106 Harley St. Late Aural Surgeon St. Thomas's Hosp.

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✶ POLLARD, BILTON, M.B., B.S., F.R.C.S., 24 Harley St., W. Late Surg. in charge of Aural Department Univ. Coll. Hosp.

✶ *VP* PRITCHARD, URBAN, M.D.(Ed.), F.R.C.S., 26 Wimpole St., W. Aural Surg. King's Coll. Hosp. Professor Aural Surgery, King's Coll., Consult. Surg. Royal Ear Hosp.

* PURVES, WILLIAM LAIDLAW, M.D.(Ed.), 20 Stratford Place, W. Aural Surg. Guy's Hosp.

* *C* SANDFORD, ARTHUR W., M.D., R.U.I., 13 St. Patrick's Place, Cork. Lect. in Ophth. and Otol. Queen's Coll. Cork, Surg. Cork Ophth. and Aural Hosp.

* SCATLIFF, JOHN MILTON ELLENBOROUGH, M.D.(Aberd.), 11 Charlotte St., Brighton. Hon. Surg. Brighton, Hove and Sussex Throat and Ear Hosp.

* SHEILD, ARTHUR MARMADUKE, M.B., B.C.(Camb.), F.R.C.S. Surg. Throat Department St. George's Hosp., Late Aural Surg. Charing Cross Hosp.

* SPICER, SCANES, M.D., B.Sc.(Lond.), 28 Welbeck St., W. Surg. Throat Department and Lect. Dis. of Throat St. Mary's Hosp.

* STEWART, WILLIAM ROBERT HENRY, F.R.C.S.(Ed.), 42 Devonshire St., W. Surg. Throat and Ear Department Gt. Northern Central Hosp., Consult. Surg. Lond. Throat Hosp.

* STONE, GEORGE, 88 Rodney St., Liverpool.

* STORY, JOHN B., M.B., B.Ch.(Dub.), F.R.C.S.I., Hon. Oc. and Aurist, Claremont Inst. for Deaf and Dumb.

* THOMSON, ST. CLAIR, M.D., M.R.C.P., F.R.C.S., 28 Queen Anne St., W. Phys. Throat Hosp. Golden Sq., Surg. Royal Ear Hosp.

* TILLEY, HERBERT, M.D., F.R.C.S., 89 Harley St., W. Surg. Throat Hosp. Golden Sq.

* TURNER, ARTHUR LOGAN, M.D., F.R.C.S.(Ed.), 20 Coates Crescent, Edinburgh. Surg. Dis. Throat and Ear Deaconess Hosp. Edin., Surg. Edin. Throat and Ear Disp.

* WAGGETT, ERNEST BLECHYNDEN, M.A., M.B., B.C. (Cantab.), 45 Upper Brook St., W. Assist. Surg. London Throat Hosp.

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* YEARSLEY, PERCIVAL MACLEOD, F.R.C.S., 33 Weymouth St., W. Surg. Royal Ear Hosp.

RULES AND REGULATIONS.

1. Name of the Society.—The Society shall be called "The Otological Society of the United Kingdom."

2. Objects of the Society.—The objects of the Society shall be

(*a*) The exhibition and demonstration of patients, models, drawings, and specimens (microscopical or otherwise), illustrating the Anatomy, Physiology, Pathology, and Therapeutics of the Ear.

(*b*) The reading of papers and the discussion of questions in Otology, previously approved by the Council.

(*c*) The investigation by Committees—

(i) Of matters of public importance relating to Otology.

(ii) New methods of investigation or treatment of the diseases of the ear.

3. Constitution of the Society.—The Society shall consist of Ordinary and Honorary Members.

The Officers of the Society shall be elected from among the Ordinary Members, and shall consist of a President, not less than two, and not more than four, Vice-Presidents, a Treasurer, a Librarian, and two Secretaries, who, with six other Members, shall constitute the Council. At least one-fourth of the Council shall consist of Members not resident in London.

4. Election of Members.—Candidates shall be proposed on a form provided for the purpose, and signed by at least three members from personal knowledge, who shall state the grounds of their recommendation, which shall be, either

(*a*) Contributions to Otology.
(*b*) Special opportunities for advancing Otology.
(*c*) Professional eminence.

The names of those proposed as new Members shall, in the first instance, be submitted to the Council, with whom the power shall rest of declining to allow the nomination to proceed.

The proposal paper shall be read at one ordinary meeting, and the ballot shall be taken at the next meeting.

No election shall take place unless ten Members vote; one black ball in five shall exclude.

5. Form of Admission by the Chairman.—Members shall be admitted personally by the following form, after signing their names in the admission book, and thereby agreeing to abide by the rules of the Society, and paying their admission fee and first annual subscription.

Form of Admission.—"By the Authority and in the name of the Otological Society of the United Kingdom, I admit you a Member thereof."

6. Honorary Members.—The Council shall have the power of electing men of distinguished eminence in Otology as Honorary Members. The number of Honorary Members shall not exceed six.

7. Expulsion of Members.—The Council shall have the power of expelling from the Society any Member whose conduct or mode of practice is considered unworthy of the Society. Notice of the Council's intention to expel him shall be sent in writing to the address in the Society's books, and he may appeal to the Society, whose vote, under Rule 8, shall be final.

8. Appeal.—A member who appeals against the decision of the Council, under Rule 7, can be finally expelled only at a General Meeting specially called for that purpose, and of which a written notice shall have been sent to every Member at least fourteen days previously. At least twenty votes must be accorded, and four-fifths shall carry the expulsion.

9. Subscriptions.—There shall be an Admission Fee of One Guinea.

The Annual Subscription shall be One Guinea, payable to the Treasurer in advance at the date of the Annual General Meeting. Any Member whose subscription is six months in arrear shall be reminded of the same by the Treasurer, and if it be not paid within the current year he shall again be reminded by the Treasurer, and if he fail to pay his subscription, his name may be removed by the Council from the list of Members.

10. The Election of Officers and Council.—(*a*) All the Ordinary Members shall be summoned by letter to the Annual Meeting in December, notice being given a fortnight beforehand, and the hour of meeting being stated.

(*b*) The Presidents, Vice-Presidents, Treasurer, Librarian, Secretaries, and Council, shall be elected by ballot at each Annual Meeting, and shall commence their duties on election.

(*c*) One-third of the Members of the Council shall be replaced in rotation at each Annual Meeting by an equal number of Ordinary Members chosen from the Society at large.

(*d*) Balloting lists of the Members recommended by the Council to fill the vacant offices shall be prepared by the Secretaries, and forwarded, together with the summons to the Annual Meeting, to every Ordinary Member of the Society.

(*e*) Two Scrutineers, appointed by the President at the commencement of the Annual Meeting, shall receive the balloting lists during the first hour, at the end of which they shall report the result to the meeting.

(*f*) In the event of equality of suffrage the President shall determine by lot.

(*g*) The Council shall have the power of filling up any vacancies which may occur in any of the offices of the Society between one Annual Meeting and another.

11. The President and Vice-Presidents.—The President shall regulate all the proceedings of the Society and Council, state, and put questions, interpret the application of the rules and regulations, and decide every doubtful point. He shall sign the minutes of General and Council Meetings.

In the absence of the President, one of the Vice-Presidents, Treasurers, or some Member chosen by the meeting, shall perform his duties. The Presidents and Vice-Presidents shall not serve for more than two consecutive years.

12. The Secretaries.—There shall be a Senior and Junior Secretary elected for each session. The Senior shall retire at the end of each session, and shall, if the Society approve, be succeeded by the Junior. The Secretaries shall have the management of the correspondence of the Society and Council. They shall attend meetings. They shall take minutes, which they shall read at the following meeting. They shall notify to new Members their election. They shall have charge of, and keep a register of, all papers communicated, and shall be the Editors of the *Transactions* under the direction of the Council.

13. The Treasurer.—The Treasurer shall receive all moneys due to the Society, and make all payments ordered by the Council, keeping an account of all such receipts and payments. He shall keep a printed receipt book for subscriptions, and every receipt and cheque shall be signed by him. He shall submit to the Council a written report of the financial state of the Society, for presentation to the Annual General Meeting. All moneys shall be banked in the name of the Society. The Treasurer shall not hold office for more than five consecutive years.

14. The Librarian.—The Librarian shall not hold office for more than five consecutive years.

15. The Council.—The Council shall have the management of the affairs of the Society. They shall meet as required during the session of the Society. Notice of the hour of meeting shall be transmitted by the Secretaries to each Member. Four shall form a *quorum*, and six shall form a *quorum* when the question of the expulsion of a Member has to be considered. The President or any three Members may call a special meeting.

They shall determine questions by vote, or by ballot if demanded, the Chairman having the casting vote. They shall call a special meeting or meetings after the close of

the session to determine what communications and illustrations shall be published in the *Transactions*; they shall make such regulations and issue such orders as shall appear to them conducive to the good government of the Society and to the proper management of its affairs, subject to the Rules of the Society. They shall appoint Investigating Committees as may be required.

16. The Society's Transactions.—The Transactions of the Society, under the designation of "*Transactions of the Otological Society of the United Kingdom*," shall be published in such manner as the Council may direct. The *Transactions* shall be presented to all Members of the Society who have paid their annual subscription. No Member whose entrance fee or subscription is in arrear shall be presented with the *Transactions*. The Council shall be empowered to present, in the name of the Society, copies of the *Transactions* to such scientific bodies as they may think fit.

17. Investigating Committee.—The Council shall, as occasion demands, appoint Committees of Members of the Society, and, if desirable, one or more Non-Members, for the purpose of investigating questions of importance in Otological science, and shall have authority to grant such sums of money as they may deem necessary for the expenses of these investigations. The reports of such Committees shall be presented to the Council to be dealt with as they may deem most advisable. Such Committees shall be called "Investigating Committees"; they shall consist of not less than three Members. The Investigating Committees shall continue to act until they have reported on the subject referred to them, or been dissolved by the Council. Every Member who has acted on an Investigating Committee shall sign the final report, or shall state in writing his reason for declining to do so.

The report shall be first received and considered by the Council, which may be specially summoned for that purpose, and shall afterwards, with their sanction, be presented at an Ordinary Meeting of the Society.

The council shall be informed by their Secretary of the

retirement of any Member of an Investigating Committee, in which case the Council may at their discretion appoint another Member of the Society to fill the vacancy.

The Investigating Committees shall render to the Council an account of all money received by them for the purpose of their investigations.

The council shall have the power to dissolve an Investigating Committee whenever they may deem it expedient.

18. Ordinary Meetings.—(*a*) The Ordinary Meetings of the Society shall be held on the first Monday, or some other day selected by the Council, at 4.30 P.M., in December, February, March, and May, in London or elsewhere, as the Council may decide.

(*b*) Each Member of the Society shall have the privilege of introducing a visitor at every Ordinary Meeting, on entering his visitor's name in the attendance book; but no visitor shall be introduced more than twice in the same session.

(*c*) The business of the Society at the Ordinary Meetings shall be:

(i) The reading of papers and report of cases.
(ii) The demonstration of cases.
(iii) The exhibition and examination of specimens (microscopical or otherwise), drawings, instruments, models, methods of treatment, and the discussion of Otological subjects.

(*d*) At the Ordinary Meetings of the Society nothing relating to its laws or management shall be brought forward.

(*e*) At Ordinary Meetings ten Members shall form a *quorum*.

(*f*) Additional Ordinary Meetings shall be held if the Council think them necessary.

(*g*) Papers (which must be written in form fit for printing) shall not, as a rule, be of such length as to occupy more than fifteen minutes in delivery. An abstract of each communication, for publication in the Medical Journals, shall be

given to the Secretaries before the end of the Meeting at which the communication is read.

(*h*) Members wishing to read papers previously approved by the .Council, or show cases, specimens, etc., shall, if possible, give notice thereof to the Secretaries ten days before the meeting.

(*i*) Papers on cases already published elsewhere by the author shall not, as a rule, be received.

(*j*) All papers shall be handed to the Secretaries immediately after being read.

(*k*) In any discussion, each Member taking part shall write on a form provided for the purpose an abstract of his remarks, which shall be given to the Secretaries before the end of the meeting.

(*l*) Every paper read before the Society shall be the exclusive property of the Society, and the author shall not be permitted to withdraw it, except by permission of the Council. If, in contravention to this rule, a paper read before the Society be published elsewhere by the author, it shall thereby be disqualified for admission into the Society's *Transactions.*

19. The Annual General and Special Meetings.—The Annual General Meeting of the Society, for the election of the officers and other Members of the Council, shall be held in December. All proposals to enact, alter or repeal rules, shall be proposed by the Council only at the Annual or Special Meeting of the Society, notice of all such proposals being transmitted to every Member, together with the summons to the Annual or Special Meeting. For the adoption of rules or changes so proposed, the votes of two-thirds of the Members present must be in favour of the proposal.

Any Member of the Society may suggest to the Council alterations in the rules, by letter addressed to the Secretary.

A Special General Meeting may be called at any time by the Council, or at the written request of any ten

Members, giving at least fourteen days notice by letter to every Member of the Society, resident in the United Kingdom, of the time of meeting, and the business upon which it is summoned, and no business shall be entered upon at such meeting except that which has been notified.

FIRST ORDINARY MEETING.

February 5, 1900.

THE PRESIDENT, SIR WILLIAM DALBY, IN THE CHAIR.

The PRESIDENT announced that Dr. MILLIGAN had presented to the Society a number of gifts, and expressed the thanks of the Members for the present, which he thought was one of many that would accrue to the Society.

The PRESIDENT also said he had to announce with the greatest regret the death of Dr. CHARLES DELSTANCHE, the President of the Brussels Congress, who had intended to be present at the late Otological Congress in England, but was prevented by the illness to which he unhappily succumbed a few days ago. He was a very distinguished man in a great many ways, and particularly in their own speciality. If the Members approved, one of the Secretaries would write a brief note of condolence to his family in Brussels, if that met with the approval of the Members.

The vote of condolence was passed unanimously.

The following gentlemen were nominated for election:

DONALD ROSE PATERSON, M.D.
FRANCIS CHARLES ABBOTT, B.Sc., M.B., M.S., F.R.C.S.
CHARLES HERBERT FAGGE, M.B., M.S., F.R.C.S.

Sir WILLIAM DALBY then read his Presidential Address as follows:—

I beg to offer you my sincere thanks for having done me the honour to appoint me the first President of the Otological Society of the United Kingdom, and I venture to predict that this Society has a great future before it. Seeing that it comprises amongst its members all the aural surgeons attached

to the Metropolitan Hospitals and very nearly all of the Provincial Hospitals, as well as of Scotland and Ireland, it cannot fail to succeed and exercise a very important influence on the progress of British Aural Surgery; for it will represent year by year the work of the aural surgeons, and will record it.

The objects of the Society are, as detailed in its Rules:

(*a*) The exhibition and demonstration of patients, models, drawings, and specimens (microscopical or otherwise), illustrating the anatomy, physiology, pathology, and therapeutics of the ear.

(*b*) The reading of papers and the discussion of questions in Otology, previously approved by the Council.

(*c*) The investigation by committees—

(i) Of matters of public importance relating to Otology.

(ii) New methods of investigation or treatment of the diseases of the ear.

If I were to allow myself to comment on the avowed objects of this Society, it would be to say that I am much inclined to agree with the general view which I think I have detected amongst the members, and especially the subcommittee which drew up the Rules, that the time of the meetings should not be occupied quite so much in the reading of papers as in demonstrations and discussions of questions which deal with treatment. I think this opinion perhaps owes its origin to an idea that papers sometimes tend to be too discursive, or to go over ground that has already been explored, and thus repeat what has been said by others, and therefore within the knowledge of the members. We are all aware that the very best work in medicine and surgery has been through the medium of papers at various societies, but there are papers and papers, and I only mention the view which I think is generally shared, as I conceive it is my duty to give expression to the wishes and ideas of members of the Society.

The essential difference between this Society and one composed of general surgeons is that whatever is brought forward

is certain to be of great interest to every individual member who attends our meetings, for the subject is sure to be one upon which every member is working; and it has been felt that to bring before a society composed of physicians and surgeons a paper on a subject essentially one of aural surgery is to obtain for it very little attention and imperfect discussion. It is in this that the great utility of our Society we hope will consist.

Another point is that when cases are brought forward it is not only rare cases which perhaps few of us have seen before that will be welcome, but more ordinary ones in which, if we have not seen the exact counterpart, we have seen something so like that the very comparison is sure to throw some new light on the disease, for it is by incessant mental comparison that knowledge slowly but surely becomes more complete.

More light, more knowledge, is what we all seek so long as we practise our art.

I think what would be chiefly noticeable to a lay visitor, if he were admitted into this assemblage of aural surgeons, would be the comparative youth (with a few exceptions) of the members. And the reason is not far to seek. It is only of recent years that the progress of aural surgery has reached such a point as to attract young surgeons of good abilities and prospects to devote their lives to its practice. I am not going to weary you with an account of this progress, for its remarkable history is within the memory of the elder members; but to myself, looking back twenty-five years, when I was beginning to work at our speciality, the contrast is very striking. Three or four London hospitals only had aural surgeons on the staff; the ear cases at other hospitals were distributed amongst the surgeons, or perfunctorily attended to by an assistant-surgeon. Comparatively few cases attended, for the public had not learned to apply for aural surgery, except at one well-known institution; the bulk of patients went for treatment and cures to those who professed to treat and cure, and confined themselves to professing, for there was nothing beyond.

The changes which have taken place in our knowledge of

diseases of the ear, and in their treatment, are not the only ways in which the practice of aural surgery has been affected. For more than twenty years past there have gradually been established out-patient departments and aural clinics at every one of our general hospitals, and in most provincial towns of any size there have arisen special hospitals for diseases of the throat and ear. No earnest student considers he has properly qualified himself till he has attended for some time in the aural department, and he gains there a very considerable knowledge of ear disease and its treatment, so that when he commences practice he considers himself, and often rightly so, competent to treat ordinary cases which some years ago he would have sent for advice to an aural surgeon. Now, in case he seeks the help of a consultant, it is only to obtain his assistance in the complete diagnosis of the case, and future treatment, which he himself, unless it is a case of a serious nature, carries out. Inasmuch as treatment often involves manipulations in which the practised hand of the specialist might be more beneficial, some will be found to say that patients would be more successfully treated if they had throughout been solely under the care of the specialist. Now, in my opinion, this is a very narrow view to take of the situation. For one person who might possibly make a more rapid recovery in this way, there are thousands who, at this period throughout the length and breadth of the land are, by timely and judicious treatment by their medical attendant, who has acquired his knowledge in the out-patient department at our hands, saved from those conditions which follow inflammatory processes within the middle ear, if these processes are allowed to proceed unchecked even for a few days. Never can the spread of knowledge in the long run be anything but good, and never let it be said that the specialist of to-day (how different from the specialist of thirty years ago!) regretted for a moment that any skill he may have acquired had become the property of others by his teaching. I have practised my profession long enough to know that by the light which we have turned upon diseases of the ear at the clinics we have burned away, we have

melted away the areas of quackery which some years ago imposed upon the public, to their loss and detriment, to a degree unknown by the present generation.

I hope I may be excused for saying a few words upon a subject which is at this moment agitating the minds of some general surgeons and all aural surgeons. It is the operations which have for their object the protection of patients who are the subjects of a disorder which renders them liable at any time to septicæmic poisoning and a rapid death. I refer to those who are suffering from suppuration within the middle ear. How attention is fixed upon this subject may be estimated by a glance at the current literature, which is full of it, to the almost complete exclusion of any other. The last volume of the "Transactions of the American Otological Society" is almost entirely filled with papers and discussions on this matter, and a most important paper on a new method of operation was read by Mr. BALLANCE only a few days ago at the Royal Medical and Chirurgical Society. On this intensely interesting question we are going through a crisis, a revolution in surgery. Let us remember that in all revolutions, however righteous, some mistakes must be made, for the man who makes no mistakes achieves nothing. In all revolutions it is not without profit to look back for a moment to their origin. There was a time, not so many years ago, when it was a recognised rule in surgery, and taught at every hospital to students, that the mastoid antrum should not be opened unless there was some redness, pain, œdema, or tenderness on pressure, or all these symptoms; in short, the usual conditions of what was termed "abscess." At this period the mortality from cerebral abscess and meningitis was terrible, and surgical recognition was confined to the records of post-mortem examination. I shall not easily forget, in the year 1878, seeing a patient with a recent perforation of the membrane and a profuse discharge with a high temperature, and three severe rigors within twenty-four hours, with no symptoms of mastoid abscess, but in whom I made a wretchedly small opening into the antrum, letting out pus, and who made a rapid recovery. In the face of the methods

of to-day, I feel ashamed of the small opening. Now in regard to the operations for cerebral and cerebellar abscess which between that date and the present have come into practice, we must confess that they were initiated and performed by general surgeons, such as Mr. BARKER, Mr. VICTOR HORSLEY, Mr. BALLANCE, Dr. MACEWEN, and others. I feel it as right and just to say this as I do to say that the mastoid operations were initiated by aural surgeons; so on this great question the general and the aural surgeons meet on common ground.

I believe I speak for both divisions when I say that during the period which is to be expended in the perfection of these operations there will be no feeling of jealousy as to the encroachment of one into the domain of the other: there will be some aural surgeons who will gladly avail themselves of the skill of the general surgeon, as indeed has been largely done in the case of such men as I have mentioned, and they, on the other hand, will be equally glad to obtain the help and opinions of aural surgeons whose great experience in the local condition and history of these cases will carry great weight in the selection of cases suitable or unsuitable for operation. At any rate, I believe I know that the one idea which will swamp all other considerations will be the security of life to each patient. You will forgive me if I am in any way presumptuous in speaking so plainly of a matter which is at the present time uppermost in our thoughts, but I feel confident it will meet your wishes that I should refer to this part of our work, which holds such a prominent position just now in British and Foreign Surgery.

Antiseptic purification of the meatus and adjacent parts, both for operation and as a treatment in chronic middle-ear suppuration.

By URBAN PRITCHARD.

I shall not apologise for calling the attention of members of this Society to the subject of antiseptic purification of

the meatus, though now, perhaps, it has come to be regarded as an old story, because—

(1) Although its importance is generally admitted, thorough antiseptic purification—both as an essential condition in successful operation on the ear, and as a treatment in otorrhœa—is not yet, in my opinion, sufficiently appreciated, nor so widely adopted as it deserves to be, and

(2) Because, personally, I consider that the discussion of a practical subject, such as this, is far more useful for the purposes of our Society than are those which deal with the more purely scientific aspects of Otology.

The purification treatment, of which I am about to speak, is merely an application of Lord Lister's method to the requirements of the ear; and, indeed, it is well known that that eminent surgeon himself introduced such a treatment when dealing with fracture of the base of the skull involving the ear, in order to prevent septic infection through the meatus.

The details of the method have been worked out by Mr. Arthur Cheatle and myself, and it has been used by us with increasing satisfaction during the last seven or eight years. I had the honour of bringing it before the notice of the Otological Section of the British Medical Association when it last met in London, and a short account of the treatment may be found in the third edition of my handbook on Diseases of the Ear (1896, p. 176). Mr. Arthur Cheatle has published a more detailed account of it in the *Edin. Med. Journ.* of June 1898.

This purification treatment is especially adapted to cases such as the following:

(1) When the membrana tympani is intact and there is no suppuration. Here its use renders the surfaces of the meatus aseptic, and so allows the surgeon to operate on growths in the walls, or to open into the tympanic cavity without infecting the deeper parts.

(2) When suppuration and perforation of the membrana tympani already exist. Either

(*a*) Where operations, such as removal of polypi, granula-

tions, or necrosis are required, or the curetting of carious spots, or

(*b*) Chronic otorrhœa.

By the use of the purification treatment, in these suppurative cases, the surfaces of the meatus are rendered as aseptic as is possible. I purposely say *as possible*, because absolutely scientific asepsis is not possible in these very septic cases. Nor is it essential; for if only we can reduce the dose of septic poison sufficiently, the natural sterilising power of the tissues will be enabled to cope successfully with the enemy. Let us now consider the method of procedure to be adopted in these various classes above mentioned.

Class 1.—Non-suppurative cases for operation, such as

Removal of exostoses.

Removal of ossicles (when advisable in non-suppurative cases).

Division of old adhesions.

Paracentesis of the membrane, for fluid in the tympanic cavity.

For such cases we usually adopt the following method:

An hour or so before operating the meatus is well syringed out with 1 in 40 carbolic solution, and afterwards mopped out with 1 in 20, until it is quite clean so far as the eye can judge. The whole auricle is then well scrubbed with 1 in 20. A strip of double cyanide gauze—well wrung out in 1 in 20, or 1 in 40, in order to get rid of the irritating soluble cyanides—twisted so as to form a loose cord, is lightly packed into the meatus, and a pad of similar gauze is applied over the auricle and kept in place by means of a bandage.

When the patient is under the anæsthetic, the bandage and all the gauze are removed, and the operation itself is performed with all the strict antiseptic precautions that are used in ordinary surgery. When the operation has been completed, the ear is dressed with strips of gauze in the meatus and pads of the same in the concha and over the auricle, secured in position by a bandage.

If, during the operation, there is anything which needs to be removed, this is done by syringing it with 1 in 40. And

here let me emphasise the importance of all syringes being thoroughly purified before they are used.

After the operation, the dressings are to be carried out according to the same antiseptic method; as a rule, an interval of forty-eight hours should be allowed before the first dressing is renewed, and two to three days, or longer, between the subsequent ones, though the frequency must greatly depend on the requirements of each individual case.

By the use of this purification treatment in operations for exostoses, granulations and purulent discharge are avoided, and the wounds heal up much more rapidly. And in paracentesis of the membrana tympani, in acute otitis without perforation, if the intratympanic fluid has not already become purulent (as is so frequently the case), suppuration may be altogether prevented by the use of this method.

Class 2.—(*a*) Cases where suppuration already exists, as with operations for removal of polypi or granulations; curetting carious spots; removal of necrosed bone; removal of ossicles, etc. etc.

In such cases the ear should be syringed out with 1 in 40 (or stronger) once or twice a day for about a week previous to the operation, instead of only once as is directed when dealing with cases under Class 1. Indeed, throughout the whole time—before, during, and after the operation—the antiseptic purification must be most thorough. Syringing with 1 in 40 has to be repeated after the operation, when frequently epidermic caseous masses, etc., may be brought away, which could not be dislodged before.

If the case is a very septic one, as in caries, the strip of gauze should be dipped in 1 in 20, and tipped with powdered iodoform. I usually put a little powdered iodoform in a pool of 1 in 20, so as to form a paste, and then dip the end of the gauze strip into it.

The dressing in these suppurative cases requires to be changed more frequently. At first, usually at the end of twenty-four hours, and afterwards about once in two days, according to circumstances. Whenever the tip of the gauze is covered with discharge, the dressing should be renewed

daily, the ear being syringed out each time with 1 in 40; if the pus is fœtid the iodoform should be used each time.

Granulations and polypi, operated on in this way, especially when the carious surface is also curetted, yield excellent results. Frequently the discharge ceases from the time of the operation, and the whole heals within a week or ten days.

I remember on one occasion examining such a case on the fourth day after operation, when the only thing that remained was a minute perforation on the extreme margin of the membrane, all other traces of the disease having completely disappeared.

Again, quite recently, a lady came to me with the meatus filled with granulations springing from the posterior wall of the meatus and tympanum, with otorrhœa of some fifteen years standing; moreover, the wall of the meatus around the granulations was swollen. At first I thought that the radical operation would be necessary, but, as she was pregnant, I decided to give the minor operation a chance. When operating I found quite an extensive carious surface of bone, and on the second dressing the tip of the gauze was saturated with very offensive discharge. But, in spite of this, the whole healed up perfectly in about a month.

Not infrequently, in cases which are doing well, there remains a slight discharge of inodorous serous fluid; this, however, soon ceases on the use of alcoholic instillations.

Lastly, Class 2.—(*b*) Chronic otorrhœa.

In the treatment of such cases the ear is to be purified as already described, using iodoform if the discharge is very offensive. The strip of gauze should be packed down so as to fill the deeper two-thirds of the meatus, and then a second smaller piece used to fill up the remainder; no bandage is required. The advantage of having the gauze in two pieces is obvious, for otherwise, if the patient fidgets out the end, the deeper portion would be disturbed.

In purifying for otorrhœa it is also important to purify the auricle, which should be wiped dry with cotton-wool or a clean cloth, after the second piece of gauze has been introduced.

The dressing should be repeated from once a day to once in two, three, or more days, according to the condition of the case, which may be readily ascertained by examining the deeper end of the gauze as it comes out of the meatus. In a favourable case the discharge rapidly diminishes, becomes sweet, and finally the gauze comes out quite dry and free from odour. It is well to continue the dressing after the discharge has ceased, leaving the gauze in for ten days or a fortnight; and even after that the patient may be advised to wear for a few weeks a piece of dry gauze, lightly introduced into the outer part of the meatus, and changed now and then.

Theoretically, exception may be taken to the use of the term "purification" for this mode of treatment, on the ground that absolute purification is not thereby ensured. Such objectors may point out that this plan cannot secure complete cleansing of all the intricate cavities of the middle ear; or, again, that there may be infection from the Eustachian tube.

It must, however, be remembered that, in the majority of cases, you practically can get sufficient antiseptic cleansing and drainage (for the discharge is absorbed and sterilised as soon as formed) so to reduce the dose of septic poison that Nature can deal with it, and thus effect a cure. With regard to the Eustachian tube, the action of the healthy cilia which line it helps materially to prevent micro-organisms passing from the naso-pharynx to the tympanic cavity. And again, as shown by Dr. St. Clair Thompson and Dr. Hewlett, the nasal passages themselves exert a sterilising influence, so that, given a healthy nose and naso-pharynx, we need not fear infection through the Eustachian tube.

As to which cases of middle-ear suppuration are most suitable for this mode of treatment, I may begin by saying that naturally the simplest yield the best results, as they do to all other forms of treatment.

But, putting these on one side, it is the neglected cases of chronic otorrhœa which answer to this method better than to any other I know, especially where there is a persistent

fœtid discharge, not large in quantity, and not involving the further inaccessible parts of the attic and antrum.

It is not so suitable to cases of caries or rapidly growing granulations until these have been treated by operation. Nor can it be used so well where the tympanum is very irritable, as then any form of stimulating treatment is resented. Again, it does not suit when there is a large quantity of discharge, or when sub-acute otitis is present with free muco-purulent discharge. However, when the quantity of the discharge has been reduced by ordinary treatment, or when the subacute stage has been transformed into the chronic, and the muco-purulent discharge lessened, then the purification treatment will often heal up the case with great rapidity.

Of course it is experience that is the best guide in determining which cases are the best adapted to this method; but, roughly, I may say that nearly all those cases which are suitable for the various forms of dry or absorbent treatment are likely to be readily healed by this purification treatment.

The President said they were very much indebted to Dr. Pritchard for his interesting paper, comments on which would be welcomed from the members. In the latter part of his paper, Dr. Pritchard, he understood, in speaking of an old perforation with a certain amount of discharge, where there was no caries, said that with great care the amount of discharge was diminished, and prognosticated that by-and-by it would stop. It would be interesting to hear from Dr. Pritchard how long treatment of that sort should go on. Should it be continued indefinitely? It should be recollected that the external air entered the tympanic cavity, resulting, in all probability, in the re-establishment of suppurating surfaces. He did not wish in any sense to dispute the permanent cure, and did not say that a return of suppuration always ensued. Supposing they took the ordinary cases of that kind, which underwent the ordinary boracic acid treatment, where the patient was told to cleanse everything with boracic acid and was not seen

for two or three years. In a considerable proportion of such cases there was a restoration of tissue, sometimes up to the extent of half or sometimes two-thirds of the tympanic membrane. When Dr. PRITCHARD stopped his reading so abruptly, he (the President) could not glean whether he intended the treatment to go on, and if so, to what extent. Supposing, when it was next looked at, it had become healed, or at all events was in a dry state, and therefore no suppuration was proceeding, would he suspend all treatment and leave it alone exposed to the air? That, in his opinion, was the great point. With such care and skill as Dr. PRITCHARD would exercise, a great many of those cases would heal by-and-by—a greater number than any one with less experience than Dr. PRITCHARD would believe. He (the President) found a great difficulty in knowing when the protective treatment should cease. For instance, if they had the ear perfectly cleansed every day, the patient treating it himself antiseptically, and was seen twice a year, after two, three, four, five, six, eight, ten, or even fifteen years, it would be in the same condition, strangely enough, under that protective method. A large number of those perforations healed up, and they healed up very often to the annoyance of the patients themselves, owing to the greatly diminished hearing caused by the formation of cicatricial tissue. Patients having those perforations, and cleansing them themselves, had moderately good hearing, but they complained bitterly of deafness when the cicatricial contraction set in. He recollected a very striking instance of that. A man who had scarlet fever when a boy, totally lost hearing in one ear, and was almost deaf in the other. After making use of the pad of cotton-wool the hearing was excellent. Six years afterwards the patient wrote from Australia, complaining bitterly that he had become deaf again, and that the pad was not improving it. Eventually he came over to England, when it was found that the perforation had completely healed. He (the President) opened it again, so that the patient could use his pad. The perforation kept open for two years afterwards, after which time it healed up again. The patient then took a pointed

piece of wood, dipped it into turpentine, and pierced the tympanic membrane himself, after which he used the pad again, and his hearing improved. That, however, only lasted for six months. Then the patient came over to England again. He (the President) strongly advised the patient to leave it alone, but the man was determined to have everything done that was possible to regain his hearing. The President, however, declined to open it, as to do so was against his judgment. As the patient persisted, Mr. CUMBERBATCH saw the case in consultation. The result was that the membrane was cut out and the pad used. The patient again heard very well. The instance showed the extraordinary tendency of some of these old perforations to heal, and when they once took to healing they would go on doing so. He would be glad to hear from Dr. PRITCHARD how long the antiseptic treatment should be continued.

Mr. CUMBERBATCH said that, while agreeing with all Dr. PRITCHARD had said, he would like to ask him why he always confined himself to treatment of these cases by carbolic acid, and whether he had tried other remedies. His own experience was that a very large number of skins resented carbolic acid very much indeed, and on the whole he had found that the weak solution of perchloride of mercury was less irritating in his hands than carbolic acid. Again, it must be the experience of every one present that the amount of irritation set up by any antiseptic was at times so great as to necessitate its discontinuance for a time. Indeed, syringing alone in many instances produced such an amount of œdema and irritation that one had to desist from using it. Thus one was sometimes driven merely to wiping out the passages and blowing in powdered boracic acid. Even then one met with cases every now and then where, after blowing in the powder, there was profuse weeping of the surfaces; and then one was at his wits' end to know what to do.

Dr. BRONNER asked whether Dr. PRITCHARD allowed the patient to put the gauze in himself. He had seen patients try to do it themselves, but they produced pain and left pieces of

the gauze in. In one or two cases he had seen it had given rise to mastoid disease. In his experience, in more than 50 per cent. of the cases, iodoform and carbolic acid produced eczema. He had found carbolic acid useful for pain, but not for stopping a discharge. He instructed the patient to get a big piece of cotton-wool and press it against the middle ear to cleanse it. In the second edition of Dr. PRITCHARD'S book, the author said that most men, in the treatment of mastoid disease, left the bandage on for two or three days after opening the abscess. He (Dr. BRONNER) thought that was contrary to all modern surgical principles, and thought that, if they had a foul-smelling wound, it ought to be dressed twice a day until it reached something approaching an aseptic stage, and not leave a bandage on a foul suppurating wound for two or three days in such a dangerous region.

Dr. MILLIGAN said he had practised the antiseptic treatment laid down by Dr. PRITCHARD with excellent results, and had carefully followed out the lines of treatment laid down by Mr. CHEATLE in his contribution to the *Edinburgh Medical Journal*. He could say that the treatment was most efficacious in the absence of any diseased bone. But when disease of the bone was present, he thought the treatment had very definite limitations. In the event of deep-seated caries being present, he would like to ask how long Dr. PRITCHARD advised that the treatment should be carried out.

Dr. PRITCHARD, in reply, said the treatment he had alluded to could only be carried out by a surgeon, therefore the time of its application had to be limited. One ceased the use of it when there was a perfectly dry condition, or rather for a short time afterwards, and then he often allowed the patient to put a piece of gauze into the outer part of the ear, but never to the bottom of the cavity, because that would lead to all sorts of trouble. If the treatment were found not to be successful at the end of, say, two or three weeks, he would revert to other treatment. As he had stated in the paper, he used everything he could until there

was left only a little serous discharge, quite inodorous, and then the alcohol treatment would arrest that. In all those cases, as the President had said, there was more liability to otorrhœa than in an ear which had never been perforated; therefore at the end of a few or many years there might be a recurrence of the discharge, or it might never recur. As to the remarks made by Mr. CUMBERBATCH, he (Dr. PRITCHARD) purposely only mentioned carbolic acid so as to make the paper simpler. Carbolic acid was what he found the most useful in that form of purification treatment. He would hardly call it "purification" if such a substance as weak boric acid were used, but he was inclined to think that lysol might prove better than carbolic acid. Not infrequently he used a solution of perchloride of mercury. In treating otorrhœa, use had to be made of many antiseptics; one suited one individual better than another. He did not say the treatment he had mentioned was suitable for an irritable tympanic cavity; it would at once be recognised if it was not, and whenever a substance was too irritating it must at once be discontinued. He thought that Dr. BRONNER'S remarks were not quite relevant to the paper.

Mr. CHEATLE thought that one of Mr. CUMBERBATCH'S questions had not been answered adequately by Dr. PRITCHARD. Mr. CUMBERBATCH asked why carbolic acid was used? It was used because of its power of penetrating greasy substances, a most important point in the purification of the cartilaginous meatus.

Dr. MACNAUGHTON-JONES said that in the ordinary alcoholic treatment the use of the alcohol was in dissolving the grease and enabling the application used to get at the deeper tissues. The names of two special antiseptics had not been mentioned that evening—viz., peroxide of hydrogen and a weak solution of formaline. Those were very useful.

Notes of a case of cerebellar abscess recently operated upon.

By William Milligan.

The case of cerebellar abscess I am about to record is interesting from the fact that the intracranial lesion followed an attack of acute suppurative middle-ear disease of only a few weeks duration, and also from the fact that, during the performance of the operation undertaken for the patient's relief, paralysis of the respiratory centre suddenly supervened, necessitating the employment of artificial respiration whilst the abscess cavity was being opened and drained.

The history of the case prior to the patient's admission to the Manchester Royal Infirmary is briefly as follows :—

N. H., male, aged 42, labourer, was attacked by a sudden and severe pain in the right ear following an acute coryza, The pain lasted for a few days, and was finally relieved after the appearance of a copious purulent discharge from the ear. A week afterwards the pain returned, and the patient then consulted his local medical attendant, Dr. Godson, of Droylsden, who found upon examination a congested but imperforate membrane, with slight swelling and dipping of the posterior meatal wall close to the attachment of the membrana tympani. Deafness upon the affected side was practically complete. Great pain was complained of in the ear, and a sense of fulness in the head. Local treatment was prescribed, and was carried on for ten days. When seen again by Dr. Godson at this stage of the disease, he was complaining of a constant dull heavy pain in the occipital region with frequent attacks of vertigo. The vertiginous sensations were described as tending to cause a general collapse, and not a definite inclination to fall to one or other side. The temperature was normal, and the pulse 72. There was no optic neuritis and no paralysis. On two or three occasions he had vomited. Upon November the 7th, a fortnight after the onset of his symptoms, he was admitted into hospital. Upon admission the following notes were made : Patient

complains of severe pains over the right masto-occipital region, pain increased by pressure, but more especially by percussion. Temperature 97·8°, pulse 60, respiration 16. Tongue thickly coated with a cream-coloured fur, breath fœtid, bowels constipated, and anterior abdominal wall markedly retracted. No optic neuritis, no hemianopsia, but a high degree of hypermetropic vertigo is complained of, and, according to the nurse's statement, the patient in walking up the ward had a markedly unsteady gait with a tendency to reel to the right side.

Upon examination the right membrana tympani is found to be intact, slightly swollen and congested in its posterior segment. Bone conduction is good, and the tuning-fork is heard best upon the right, the affected ear. The mental condition of the patient is fair; there is no marked "slow cerebration."

A consideration of the history of the case and of the symptoms present pointed to the probable presence of a cerebellar abscess. Ten grains of calomel were ordered, and ice was applied to the back of the head. The following day the patient was in much the same condition, if anything the pain in the head being perhaps somewhat worse. An exploratory tympanotomy was made, but no pus was found in the cavity of the middle ear. The pulse now varied from 52 to 55; the temperature was 97·6°, and the respirations 15. A slight attack of sickness had taken place quite independent of the taking of food. The patient had also become excitable and very restless.

Arrangements were accordingly made for operation.

Operation.—The usual preliminary preparation of the head having been made, the first step consisted in freely opening the mastoid antrum and adjacent mastoid cells. The mucosa lining the anterior and surrounding cells was deeply congested. A small quantity of pus—merely a few drops—was found in one of the more superficial of the mastoid cells. Careful search, by means of reflected light, failed to reveal any fistulous tract in either the roof or first wall of the antrum or the roof of the middle ear.

It was accordingly decided to expose the cerebellum at once, and search for pus towards the anterior part of the right cerebellar lobe, the part of the cerebellum nearest to the original seat of disease.

Just as the incision to expose the occipital bone had been commenced, the patient suddenly, and without any warning, ceased to breathe, the pulse, however, continuing to beat perfectly regularly. Artificial respiration was immediately resorted to, and was kept up whilst a disc of bone was removed as rapidly as possible, the trephine-pin being placed one and a half inch behind and half an inch below the centre of the external auditory meatus. Upon removal of the disc of bone the dura at once bulged, and the underlying brain was seen not to pulsate.

The dura was accordingly incised, and a grooved director passed into the substance of the cerebellum, the direction of its introduction being from inwards and forwards towards the apex of the lateral lobe. After having penetrated the substance of the cerebellum for from half to three-quarters of an inch, pus was seen to well up along the groove. A pair of scissor forceps was accordingly passed along the grooved director into the abscess cavity. Upon being opened, pus, evidently under considerable tension, and sloughs of brain-tissue, at once gushed out. I regret very much that the exact amount was not preserved, and more especially that no sample was taken for bacteriological examination.

After having evacuated as much pus as appeared willing to flow, a careful digital examination of the abscess cavity was made, the point of the little finger being carefully introduced, in order to feel if any secondary abscess was present. Nothing of this sort having been felt, the finger was withdrawn and a rubber drainage-tube inserted. The abscess cavity was then washed out with warm 1 in 60 carbolic lotion, the incised dura stitched, and the skin flaps brought together in the ordinary way.

After the operation the patient made steady although somewhat slow progress towards recovery. It was noted,

however, that his mental condition was not brilliant, that he had a certain hesitancy about his speech, and that towards evening and during the night he would occasionally become excitable and unruly. Three weeks after the operation he was allowed up for a short time, and was also allowed small quantities of solid food. Very shortly after this, however—in about a month after the operation—he again began to complain of pain in the head and of a feeling of dizziness. Slight optic neuritis was also noted. Indications also were present of a commencing hernia cerebelli. The patient was accordingly put under chloroform and the cerebellum again exposed. A second abscess cavity was found, and was drained. It was noted that the surface of the cerebellum, as far as could be seen, was in an œdematous and congested condition. Antiseptic dressings were applied, and small doses of bichloride of mercury were given internally. The patient again rallied and progressed quite satisfactorily for a fortnight. His mental condition again gave rise at this time to grave anxiety. He became very restless, would moan a great deal, talking to himself at times, and shouting an incoherent mass of nonsense at other times. His temperature was slightly elevated at night, and varied from 98° to 100° F. His pulse-rate never exceeded 72, and his respiration-rate was usually 16. There was no paralysis of motion. Slight nystagmus was frequently observed. There was marked loss of appetite and very pronounced constipation. Suddenly one evening he became very restless, his temperature rapidly rising to 104°. This was followed by a severe general convulsion and then by profound coma. His temperature kept steadily rising until, just before his death, it was found to be 110° F.

An examination of the head was made after death. The dura mater was found to be normal. The pia-arachnoid was congested and somewhat œdematous over the hemispheres, opaque thickened and the seat of purulent exudation over the base. The right cerebellar hemisphere contained an old purulent focus, the surrounding brain-tissue being in a state of necrosis.

The right temporal bone was also examined. No fistulous tract was found leading from the middle ear or mastoid area to the interior of the cranium.

Mr. BALLANCE, in referring to Dr. MILLIGAN'S case, said he thought the contribution was a most interesting one, especially from the way in which it had been brought forward. The first question was whether the brain abscess was an infection from the ear or not; whether the slight otorrhœa which occurred for a few days previously produced the cerebellar abscess, or whether the otorrhœa and brain abscess were *independent* local manifestations of some general condition. There were some cases he remembered, published by the late Dr. BRISTOW many years ago, which occurred in the first influenza epidemic: cases of abscess in the cerebellum, abscess in the occipital lobe, and in the fronto-parietal region. In these cases Dr. BRISTOW attributed the infection to influenza or influenzal pyæmia. At all events, the patients died of abscess of the brain, and in neither case was a brain abscess diagnosed. The case which Dr. MILLIGAN had related reminded him of those. It was certainly very remarkable to get an abscess of the brain from an infection of any part of the surrounding parietes without being able to show at the operation or at the post-mortem examination a very definite lesion; wherever the abscess was, a lesion was generally found in its immediate neighbourhood. Perhaps Dr. MILLIGAN would be able to say a little more about the conditions found, and he might also give his view as to whether it was possible that the inflammation of the ear might have been independent of the abscess in the cerebellum, or whether the two things might have been due to the same cause. With regard to the tenderness on pressure over the site of the abscess, in many cases in which there was no otorrhœa it was very difficult to know whether there was an abscess if there were no ocular symptoms present. He had asked Dr. MILLIGAN about the attitude of the patient in bed, and was told that there was no particular attitude. He (Mr. BALLANCE) had in several cases observed that the

patient took the same attitude as monkeys on the ablation of the lateral lobe in the brain. He had operated on three cases of cerebellar abscess during artificial respiration, and knew the difficulty of doing so. Some years ago he operated upon a case of abscess of the optic thalamus. The pulse was going well, though the operation was done five hours after natural respiration had ceased. With regard to the question of digital examination, when he (Mr. Ballance) could not find the site of the abscess with a trochar or cannula or needle, he found the best organ was the finger. He had tried to insist on this specially in his article in Allbutt's "System of Medicine." He knew several cases in which the use of the trochar and cannula had absolutely failed in all parts of the brain to find an abscess. He had known cases in which the trochar and cannula had been put right across the abscess without the operator knowing it, and when the case was in the post-mortem room the abscess was found, but not before. He was sure that in all parts of the brain the finger was the proper organ to use for the discovery of an abscess. Sometimes the abscess was on the surface of the brain, and he had often known one rupture as soon as the dura was incised. In the cerebellum he had known three cases of an abscess underneath the tentorium, a very thin abscess, in shape something like an oyster. The opening which was made behind the posterior border of the mastoid process in order to open into an abscess of the cerebellum was some distance below the tentorium, and such a case as that happened to him. He opened a large abscess in the anterior part of the lateral lobe of the cerebellum, and ten days later the patient got symptoms which were not referable to the cerebellum, but which he believed to be due to some further inflammation in the cerebellum. He put in his finger, and in the back part of the cerebellum he distinctly felt a large lump. This he opened. The patient was very well for ten days, and he had given up visiting him. However, he was informed that the patient was again bad, in very much the same condition. He had a rapid pulse and the temperature had gone up. He had been noisy in the

day. He (Mr. BALLANCE) put the end of his index-finger into the cerebellum, but could not find anything wrong except that he thought the tentorium went down rather far. It did not occur to him that there was that thin layer of abscess in the cerebellum beneath the tentorium. The patient died. He had seen two other cases of the same sort since in the post-mortem room, so he was very glad of the opportunity of making those remarks, so that other members could be on the look-out for such thin oyster-shaped abscesses.

Dr. MILLIGAN, in reply, said he was very pleased to hear Mr. BALLANCE'S remarks, especially as to the possibility of the abscess he related being of an influenzal nature. He (Dr. MILLIGAN) could not make up his mind on the point, as it was only of three days duration. He asked the patient particularly about influenza, but his reply was negative. Notwithstanding that, he (Dr. MILLIGAN) was not inclined to discard the suggestion of Mr. BALLANCE, but was inclined to think it was correct, namely, that there had been a slight middle-ear inflammation, which was a coincidence, and that the abscess was perhaps not secondary to the lesion at all, but was one of those rare post-influenzal intra-cranial abscesses. Post-mortem, though careful examination was made, no local lesion was found nor any ulceration of the temporal bone, nor of the tegmen tympani, nor of the posterior wall of the antrum, nor any thrombosis of the lateral sinus. He was indebted to Mr. BALLANCE for his hint on digital examination. In his case he made very careful digital examination to see if there was any secondary abscess. Still he might have missed it. Notwithstanding that, he was inclined to think there was no secondary abscess present at the first operation, and that the second abscess formed a month afterwards from the suppurating cerebellitis.

Specimen of cholesteatoma removed through the meatus, with the patient from whom it was removed. Antrum and mastoid process hollowed out.

By URBAN PRITCHARD.

Nurse I——, age 45.—The patient had otorrhœa on both sides, with severe inflammation in the right ear as a child. Said to have got well, but has been deaf on the right side ever since. First seen on August 8, 1894. Two months before had blood-poisoning; probably infected the left hand in her work, as glands of arm affected. Complained of scalp pain and sudden deafness on left side.

Right Ear.—Signs of former mastoid disease, healed wound behind auricle, slight otorrhœa, otherwise no active disease.

Left Ear.—Old perforation and otorrhœa.

Hearing distance by watch, $\frac{R.\ O}{L.\ 5\%}$; after Pol. $\frac{O}{7\%}$ T.F. $\frac{R.\ O\ -}{L.\ 1\frac{1}{2}''+}$

Face looked as if there had been slight R. facial paralysis at some time.

Jan. 5th, 1900.—No sign of active disease in R. till within the last four or five weeks, since then pain in right ear and much discharge; meatus, etc., filled with epidermic material. Admitted into King's College Hospital. Large mass of cholesteatomatous material syringed out, leaving extensive cavity such as left by the ordinary complete post-aural operation.

Specimen of large cholesteatoma removed from the mastoid in a boy aged 14 years.

By HERBERT TILLEY.

The disease had practically hollowed out the mastoid altogether, so that the middle ear, tympanum, attic, and antrum, and the whole mastoid, was one continuous large

cavity. The only operation necessary was to make an incision and break down a shelf of bone separating the antrum from the attic. The boy had done perfectly well.

Specimen of cholesteatoma removed from the auditory meatus.

By Herbert Tilley.

The interesting symptom was a tremendous cough which the patient had been suffering from. Dr. Tilley wanted to leave the mass for a few days, so that it might be softened with some oleaginous substance; but operation was insisted upon, and accordingly he removed the mass and found the meatus went practically back into the mastoid cells. Since then the cough had practically ceased.

A case of thrombo-phlebitis of the lateral sinus, treated by operation without ligature of the internal jugular vein. Recovery.

By Dundas Grant.

Eleanor S., aged 22, was referred to me at the Central London Throat and Ear Hospital on the 7th June 1898. She arrived in an almost moribund condition with a temperature of 103°, and it could only be elicited from her that for a fortnight she had been suffering from repeated shiverings. There was a fœtid discharge from the right ear, of many years duration. Her condition was so urgent that she was at once placed on the operating-table, and I performed the radical operation, evacuating a quantity of granulation-tissue from the mastoid antrum. I then chiselled a hole through the back wall into the groove of the lateral sinus, when at once a large quantity of fœtid pus welled up under considerable pressure. On further exposure I found that this came through a hole in the wall of the sinus itself. I therefore exposed the vessel farther in both directions, and

slit it up freely, thereby opening into a quantity of broken-down clot in the horizontal portion of the lateral sinus. On scraping this completely away, I found that I reached both in the backward and downward direction a most perfect normal-looking blood-clot, and I thought it right, having removed the original cause of infection, to postpone further operation in the hope that no further infection would take place, and that the clot which had formed would act in the same way as a ligature. I therefore cleared out the *débris* very thoroughly, irrigated with perchloride solution, injected iodoform, and plugged lightly with iodoform gauze. There was no further rise of temperature, and the patient steadily recovered. Had further symptoms of pyæmia presented themselves, I should have been prepared to operate further on the jugular vein and lateral sinus. The result of the treatment in this case was extremely gratifying, but I think it is an exceptional one, and that the general rule should be to tie and divide the jugular vein so that one may wash out the sigmoid sinus and bulb. The case presents a further point of interest, namely, that I omitted all attempts at plastic measures after the mastoid operation, with a result that the lining of the meatus has found its way into the antrum and attic under the action of cicatricial contraction from behind, and a most perfect lining has spontaneously taken place.

A case of chronic middle-ear suppuration and thrombosis of the lateral sinus, in which the internal jugular vein was not ligatured. Recovery.

By Arthur H. Cheatle.

A boy, aged 14, attended King's College Hospital on June 26th, 1899, complaining of pain round the left ear and of vomiting. Eighteen months previously he had had a discharge from both ears, which "was stopped." On two occasions since then he had suffered from earache, but there had not been any discharge. Five days before

being seen at the hospital he had pain in his head and commenced to vomit. The pain, which was at first intermittent, had become continuous. The vomiting had caused great distress, and, as no food could be retained, he had rapidly lost flesh. Two days before admission the ear had discharged, with some relief to the pain. Giddiness had been complained of for two days. A marked shivering fit occurred during the night before the visit to the hospital. The boy looked wasted and anxious, and was extremely restless. He was sensible and answered questions readily. On walking he had a tendency to walk towards the right. The tongue was white, furred, and moist. The temperature was 100·2° F. and the pulse was 104. An offensive brown discharge came from both ears, a perforation being present in Shrapnell's membrane on each side. There was no bulging of the posterior superior deep meatal wall in the left ear, nor did the auricle stand out, and there was no redness or swelling behind it. Marked tenderness on pressure was present behind the mastoid process and below the ear, where glandular enlargement could be felt. The heart and lungs were normal. Mr. CARGILL reported that papillitis was present in both discs equally.

A few hours after admission the patient was placed under chloroform. The antrum was found to be full of granulations and cholesteatomata. On laying the antrum into the middle ear the malleus and incus were found both carious. The attic and middle ear were then thoroughly cleared. On examining the walls of the antrum a discoloured and softened patch of bone was found in the posterior, leading directly to the lateral sinus. The sinus having been exposed for over an inch of its length it could be seen that it was occupied by a firm clot which was dark in colour except at the point of infection, where it was slightly yellow, and evidently breaking down. As giddiness had been a marked symptom, the cerebellum both in front of and behind the sinus was thoroughly explored. but with no result. The dura mater, which had been incised, having been stitched up with catgut, the sinus was laid open for the whole of its exposed length

and the clot was turned out. As the clot for some distance above and below the point of infection was dark-coloured and firm, it was decided not to tie the internal jugular vein but to clear the thrombus out as far as possible from the wound. For this purpose a sharp spoon was first carefully passed downwards, no bleeding occurring. A gauze plug having been prepared, the spoon was passed backwards towards the torcular; after some clot had been gently removed a free gush of blood took place, shooting out a healthy-looking mass of clot fully one and a half inch in length. The bleeding was easily controlled by the plug. The whole wound was then packed with iodoformed cyanide gauze. The operation occupied one hour and a quarter. An hour after the operation a rigor occurred, the temperature reaching 102·4°. From that time the progress was steady and uneventful, but slow.

Mr. Ballance said he thought Mr. Cheatle had been right in not ligaturing the vein in the case which he described. If there were a localised abscess in the lateral sinus, it was not necessary to ligate the vein; but in other cases in which the infected clot extended they were bound to do so. He had a case of lateral sinus thrombosis on which he operated on the twenty-first day. The woman had a temperature of 105° and 106°, with a rigor twice a day for twenty-one days. When he saw her she was very ill, and there was a hard swelling down the neck. He did the ordinary operation in the mastoid region, and found very offensive pus in the sinus. In operating on the vein in the neck, he found it full of fœtid clot; he followed the clot down the neck, and at last made an incision between the two heads of attachment of the sterno-mastoid. He then clamped, with the fingers of an assistant, the subclavian vein and pulled out a termination of the fœtid clot from the subclavian. That was a good type of case in which they must deal with the internal jugular vein. The type of case described by Mr. Cheatle could very well be left without ligature of the internal jugular.

Dr. MILLIGAN alluded to a contribution to the *Glasgow Medical Journal* by Mr. YOUNG on the subject. Mr. YOUNG, believing that there was a local septic abscess in the vein, the poison of which had become generalised, opened the vein, drained it, but did not tie it. He (Dr. MILLIGAN) saw a curious case in which the vein had been opened as a result of the ulcerating process. It was a patient upon whom he operated at the end of the third week of the disease. He was in a septic condition, and his temperature had varied from the normal to 104° for days previously. He came to the conclusion there was an extradural abscess round the sinus and septic thrombosis opposite. At the operation, he found the vein occluded by thrombosis at its distal end, but at the proximal end the vein was lying open in the middle of the abscess cavity. He decided that, as there was no fulness along the costal jugular vein, and only a small blood-clot in the proximal end, it was not advisable to tie the jugular. Four or five days after the operation, an indistinct swelling was felt in the neck, which gradually increased in size. He cut down upon it and found it was a periphlebitic abscess which probably had been conveyed along the fibrous sheath of the vein itself. He opened the abscess to tie the jugular vein, and, although the patient at that time had a small pulmonary infarct, he had since recovered. If there was no generalised poisoning, it was prudent to cut down upon the vein, drain any periphlebitic abscess which might be there, but not to tie the jugular in the neck. If there were secondary metastatic deposits, no time should be lost in tying the vein.

Mr. CHEATLE said the course he would adopt would depend upon the local condition he found at the time. Dr. MILLIGAN had alluded to the pus tracking along the internal jugular vein. He had seen a case in which the pus had tracked down by the side of the sinus, through the jugular foramen and out into the neck under the deep fascia.

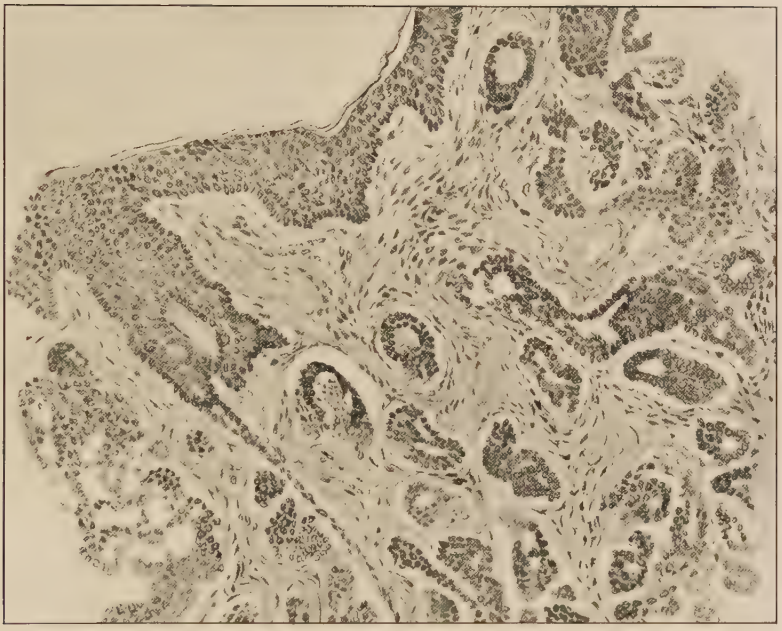
Patient in whom a large part of the auricle and the whole of the meatus have been removed for adeno-carcinoma, and in whom the post-aural operation has been performed. With specimen and microscopical section.

By Arthur H. Cheatle.

The patient, a young woman, aged 27, had been for some years under Mr. Cheatle's care, coming originally for right chronic middle-ear suppuration, the perforation being in the inferior segment. She had been in the habit of putting a pin down the meatus in order to clear it. Towards the end of 1895, a pale sessile swelling gradually appeared on the posterior cartilaginous meatal wall close to the orifice. As the swelling gradually increased, it was removed, as far as possible, by the meatal route. The antrum was also opened about the same time and nothing found. During 1896, the swelling again slowly reappeared, and was again removed by turning the auricle forwards and cutting away the tumour and meatal wall. In 1898, recurrence again took place, and as there was considerable pain and somewhat rapid growth, a more radical operation was performed. In October 1898, the lower third of the auricle, including the tragus, concha and lobule, together with the whole meatus down to the middle ear, was removed. The growth was found to have involved the whole cartilaginous meatus, and was pale and rather firm in character. The malleus and incus were also removed, the handle of the former being lost. The posterior free edge of the remains of the auricle was then brought forward and stitched in position. Microscopical examination showed the tumour to be an adeno-carcinoma. No glandular enlargement could be detected.

As the wound healed, it was found impossible to keep the meatal passage open; so in May 1899, the radical post-aural operation was performed. Caries of the outer attic wall and of the superior antral wall, with a commencing extra-dural

Fig. 1.



x about 136.

Adeno-carcinoma of the meatus.

Mr. ARTHUR H. CHEATLE'S Case.

Fig. 2.

Photograph of patient after operation. A permanent opening is present behind the auricle.

Mr. Arthur H. Cheatle's Case.

abscess, was found. The meatal passage was allowed to heal.

A fairly presentable auricle is now seen with a permanent opening behind, through which the watch (10 ft.) can be heard at two inches, and conversational voice at a yard.

No recurrence has taken place since the operation in October 1898.

The PRESIDENT said it was rare for malignant disease to attack the meatus in that way. All the cases of that disease he had seen were in the tympanic cavity, with the exception of one which commenced in the skin over the mastoid process.

Mr. CUMBERBATCH related a case in which he had been asked to remove a polypus from an ear. The patient was a fat lady, aged 64, and he found a number of warty growths over the meatus, leaving a narrow passage in the middle. He could not get any history of discharge or suppuration, and as soon as it was touched there was no doubt about the diagnosis. The growth appeared to start in the meatus and spread by outgrowths until the condition described had been reached. He did nothing to it. The patient died six months after.

Dr. MILLIGAN related a case of epithelioma in a stonemason; the ear had been wounded by a chisel, and the constant irritation of the scar resulted in the epithelioma. He had seen five or six such cases, and thought they were not so uncommon as the text-books stated.

Mr. SECKER WALKER related a case of epithelioma of the auricle in a lady, aged 58, which he removed, believing it to be a polypus. It turned out to be epithelioma. Accordingly, about a fortnight afterwards, he opened the mastoid from behind, turned the edges forward, cleared it out, and did the post-aural operation. Two or three months afterwards a return of the growth appeared deep in the meatus, evidently perforating the drum and going through into the middle ear. He opened the old incision, chiselled away the bone as far as he could, to try to get rid of the disease. The patient was free for eight months, but then there was a return.

Mr. CHEATLE said, with regard to the question of rarity, that a distinction should be drawn between epithelioma of the auricle and epithelioma of the meatus or middle ear. For the disease to commence in the auricle was not uncommon, but in the meatus it is distinctly so; the point was well seen in the Museum of the last International Otological Congress.

A case of sequestration of the cochlea in a case of cured cerebellar abscess.

By ERNEST WAGGETT.

The earlier history of the case, that of a man of 26, has already been reported (Annual Meeting British Medical Association, 1899) and the events leading up to the cerebellar operation detailed. It is only of interest here to say that vertigo supervened in a case of very long-standing otorrhœa, and that a polypus springing from the posterior superior region of the disorganised middle ear was removed.

Infection of the wound ensued as the result of the patient thrusting a wad of cotton into his ear. Facial palsy followed, and, in spite of an immediate and thorough mastoid operation, cerebellar abscess occurred. The abscess proved to be located in the extreme anterior part of the lateral lobe, and the internal auditory meatus was presumed to be the route taken by the infection, the facial nerve sharing in the destructive consequences. In the moribund patient no attempt was made to explore the petrous bone beyond digital palpation of its posterior surface, which was necessitated by the circumstances of the cerebellar operation. This surface seemed to be intact.

Some weeks after the operation bare bone was detected in the aural fundus. In view of the excellent condition of the patient and the serious nature of his previous illness, it was decided to deal with this by purely conservative measures. After a period of eleven months, during which no pain or

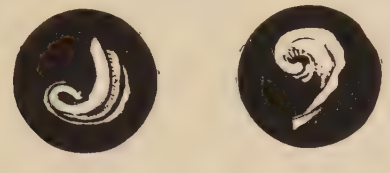
Fig. 4.

Fundus of the right ear and operation cavity showing recess due to sequestration of cochlea. Twice natural size.

Mr. WAGGETT'S Case.

discomfort was experienced, a sequestrum came away, which proved to consist of the greater part of the cochlea complete with the exception of the outer wall.

FIG. 3.



Two aspects of the sequestrum. × 2.
Mr. WAGGETT'S Case.

The previous suppuration ceased within a few days in the deep recess from which the sequestrum had escaped. A little moisture is to be seen still exuding from the lower part of the disfigured promontory, and it is surmised that the minute fistula present may communicate with the foramen rotundum.

Hearing by bone conduction has been completely wanting, in the R. (affected) side since it was first tested a few days after the original mastoid operation. The patient states that he can never remember the time when hearing was present on that side.

Mr. WAGGETT laid stress upon the existence of two categories of cerebellar abscess, distinguished by the route taken by the infection—*i.e.*, the internal auditory meatus and the sigmoid groove route. He invited criticism of his apparently unsurgical procedure of leaving a piece of necrosed bone in that dangerous area. His apology for that was that the man would probably have been much worse off if an attempt had been made to remove the sequestrum. He thought the result had justified the course he had adopted.

The PRESIDENT said they recollected the remarkable instance in which the cochlea came away in a case attended

by Dr. CASSELS. It was referred to in Mr. Hinton's "Questions of Aural Surgery."

Mr. LAKE mentioned a case of abscess of the brain in which the cochlea was exfoliated. A case was quoted in Wild's "Aural Surgery" in which a man had had hemiplegia. Bare bone could be seen at the bottom of the canal. A tremendous discharge of pus followed and the man got well; it was found that the cochlea had been exfoliated.

Mr. BALLANCE said the surgical aspect of the case was very important. Mr. WAGGETT had told him he would do nothing more with the case. There was still suppuration from the petrous bone, and that suppuration was in the most dangerous region of the body so far as bones were concerned. They ought to treat suppuration of the petrous as they would suppuration of any other bone, and indeed to deal with it thoroughly, because of the possible danger of infection of neighbouring tissues. He had healed cases of suppuration of the petrous bone. He quite recognised the extreme difficulty of dealing with the region of the cochlea. He suggested that when the disease was removed an epithelial graft should be applied.

SECOND ORDINARY MEETING.

March 5, 1900.

THE PRESIDENT, SIR WILLIAM DALBY, IN THE CHAIR.

The PRESIDENT announced that Mr. CUMBERBATCH had kindly presented a cabinet for microscopical slides to the Society. The PRESIDENT also announced that the Council had appointed an Investigation Committee, composed of himself, Dr. HERBERT TILLEY, and Mr. ARTHUR CHEATLE, to inquire into the condition of the ears in school children.

The following gentlemen were elected members of the Society :—

D. R. PATERSON, M.D., 18 Windsor Place, Cardiff.
F. C. ABBOTT, M.B., M.S., F.R.C.S., 44 Welbeck Street.
C. H. FAGGE, M.B., M.S., F.R.C.S., 22 St. Thomas's Street, London Bridge.

The following gentleman was nominated for election :—
HARRY LAMBERT LACK, M.D., F.R.C.S.

Case of old-standing perforation of the tympanic membrane closed by means of applications of trichloracetic acid.

By DUNDAS GRANT.

The patient, Dr. E. A., aged 50, came under my observation on the 6th of December, 1899, complaining of deafness and noises in the right ear. These had dated from a suppurative inflammation in the right middle ear caused by a blow on the ear, and had lasted for thirty years.

On examination, an oval perforation was seen in the

postero-superior quadrant of the membrane through which the head and posterior crus of the stapes (perhaps also the stapedius tendon) and a portion of the long process of the incus were plainly visible. A loud perforation sound was heard on inflation. The watch was heard at 2½ inches, the bone conduction was slightly diminished, Rinné was negative, and the tuning-fork on the vertex was heard in the affected ear.

Hearing was slightly improved by the application of a thin layer of moist cotton-wool so as to cover the perforation, and, in view of this, I proposed to make an endeavour to close the perforation so as to restore anatomical completeness to his tympanum without diminishing the hearing function.

I, therefore, applied deliquesced trichloracetic acid all round the edges of the perforation, by means of a minute swab of absorbent wool wrapped round the point of a fine copper probe, after having cocainised the part. This was repeated about six times at intervals of about a week. Each time the cauterised edges of the opening were cleared of the small adherent white deposit before the acid was reapplied. Ultimately, a single whitish crust was seen adhering to the posterior part of the site of the perforation and partly to the posterior wall of the meatus. When this was wiped off, the perforation was found to be completely closed, and the migration backwards of the crust seems to indicate that the membrane closing it was taking the centrifugal direction of growth characteristic of the membrana tympani.

The watch is now heard at a distance of five inches; no perforation sound can be produced.

The application was only painful when the cocainisation was incomplete.

A patient, male, who has had the malleus removed for long-standing suppuration, with perforation in membrana flaccida. Cure.

By Urban Pritchard.

The case was one of old-standing mastoid disease, which had woke up several times, and had been under his care ten

years. The parents had always objected to any form of operation, therefore nothing could be done until about three months ago, when they agreed that the ossicles might be removed. He removed them on one side, and the part had completely healed. On the other side there was a perforation in the membrana flaccida, and the same thing would be done on that side later on.

The PRESIDENT said the case seemed to him to be a most excellent one, and the cicatricial tissue was very sound.

Mr. CHEATLE said that in a recent discussion at a meeting of the Royal Medico-Chirurgical Society the question was asked in what cases the complete post-aural operation ought to be done. In that discussion, although Mr. BALLANCE had just alluded to removal of the ossicles, the other speakers on the subject did not refer to it. He (Mr. CHEATLE) thought that in removal of the ossicles they had a valuable method of treating chronic middle-ear suppuration. Even if it did not cure the cases, it indicated what was the next step to be taken, so that they need not be in doubt as to the treatment, each case of course being judged on its own merits. First antiseptic syringing, packing, curetting, etc., should be done; if these failed, removal of the ossicles and outer attic wall should be carried out; and if that again did not succeed, the complete post-aural operation was indicated. Of course he put on one side those cases in which the post-aural operation was indicated at once.

Mr. LAKE said he thought they were very glad the case had been brought forward, from the point of view expressed by Mr. CHEATLE. Some of them had been doing the operation of ossiculectomy for some years with great success, and the performance of that operation in suitable cases had diminished the number of times the major operation was required. He had done more than one hundred operations of removal of ossicles, and but for that operation a large number of the cases would have been considered suitable for the more radical procedure. In his first fifty cases, the average duration was thirteen years. He thought it was

well to have such cases brought forward, as they showed what good results could be obtained.

Mr. BALLANCE said he had seen a good many of Mr. LAKE'S cases, and had been highly pleased with the results. He (Mr. BALLANCE) had also removed the ossicles himself. With regard to Mr. CHEATLE'S remarks, his (Mr. BALLANCE'S) paper before the Medico-Chirurgical Society was a description of the radical operation, and he referred to that operation as being only carried out under certain specified conditions; for instance, after all minor treatment, including removal of the ossicles, had been considered.

Mr. CUMBERBATCH said that, on the occasion which had been mentioned, it was not a discussion as to what should be done for incurable or chronic cases of suppuration which failed in the ordinary way, but remarks were asked bearing on the question of doing a radical operation. That was why he did not refer to that particular operation at the meeting of the Medico-Chirurgical Society; and, secondly, because his experience had been so small that there were other members who could speak more definitely about it.

The PRESIDENT said it was in those cases, where it was imperatively necessary to save the life of the patient, that the major operation should be done. He never suggested any previous treatment. It was very difficult to come to the rights of the question of removal of the ossicles.

Mr. CHEATLE explained that one could not leave out the effect of treatment in considering the indications for the complete operation.

Patient with exostosis occluding the meatus.

By RICHARD LAKE.

Mr. LAKE said he saw the patient two years ago, when he had an exostosis growing from the posterior wall of his right canal, and filling up all except a very narrow chink. There was also a second small exostosis growing from the anterior wall above, which had divided the previously small chink into

two, and he now got a periodical occlusion of that chink with wax, and then he could no longer hear. Otherwise the ear was good.

Mr. CHEATLE said he would recommend turning the auricle forwards and chiselling the exostosis off.

The PRESIDENT said he would recommend the same treatment as Mr. CHEATLE.

Patient with destruction of both external attic walls with intact membranes.

By RICHARD LAKE.

Mr. CHEATLE said the case demonstrated Nature's method of curing disease in this region.

The PRESIDENT said he had seen many cases where there was destruction of the attic wall, and the rest of the membrane had been good, the tympanic cavity not being involved at all. Where the affection was noticed on one side, it frequently happened that there was a similar condition on the other side also.

A child with congenital abnormalities of both ears.

By HERBERT TILLEY.

Dr. TILLEY said the child he had shown came to the hospital on account of nasal obstruction due to adenoids, and it was only whilst examining the child that the mother drew attention to the condition of the upper attachment of the pinna, which she said discharged a little every morning. He found it was the remains of the small space which existed between the first and second tubercle, which fused to form the pinna in development. The condition was bilateral, and the interesting point was that the father wrote to say he had no knowledge of anything similar occurring in his father's or his mother's family. It appeared first among his own sisters and brothers. He had two ears

like it, a brother had one, three of his sisters had one each, and he believed a child of one of his sisters had two.

Mr. CHEATLE said that dimples were not uncommon, but as a rule they did not cause much trouble. A little while ago he had a case in the hospital in which the patient had a dimple on the right side and a sinus on the left, leading upwards, backwards, and inwards. Every now and then an abscess formed, then burst, leaving an ulcer which healed, still leaving the sinus; the same thing occurring over and over again. It was only by slitting up the sinuses and applying pure carbolic acid and packing that healing was brought about.

Dr. MILLIGAN asked whether Mr. CHEATLE examined for tubercle bacilli in his case, because he (Dr. MILLIGAN) had seen a similar case which was tuberculous.

Mr. CHEATLE replied that no examination for tubercle bacilli was made.

Patient on whom the complete post-aural operation had been performed five weeks previously.

By ARTHUR H. CHEATLE.

The patient had only been packed six times at intervals of three days since the operation, syringing once a day with carbolic 1 in 60, followed by instillation of spirit being substituted; nitrate of silver being applied to exuberant granulations.

Patient on whom the complete post-aural operation had been performed three weeks previously.

By ARTHUR H. CHEATLE.

The patient had only been packed three times at intervals of three days since the operation, the same syringing and instillation treatment being used since as in the former case.

Mr. BALLANCE said the cases which Mr. CHEATLE showed were admirable examples of the tamponing method of promoting the healing of the bone cavity after the radical mastoid operation, and were such as they would expect Mr. CHEATLE to show. In both cases, a large unhealed bony surface was visible. By epithelial grafting, the bone surface could be completely healed within a fortnight of the original operation, possibly in less time; and it seemed to him that epithelial grafting would be largely practised in the future.

With regard to the actual operation which he now performed, he would like to add to what he said in his paper before the Royal Medical and Chirurgical Society. In that paper special stress was laid upon the healing of the bone wound. It so happened that he had had several cases in which the paradoxical result ensued, of the bone-wound healing weeks before discharge ceased from the inner surface of the mastoid flap and from the cut edge of the conchal-meatal flap. To avoid this delay in the healing process, he proposed that the inner surface of the mastoid flap, corresponding to the bone cavity, should be grafted either at the first operation or at the same time as the bone cavity was grafted, viz., at the second operation. He thought that epithelial grafting would enable them to promise absolutely to any patient complete and final healing of the wound, which in no case could truly be definitely promised by the tamponing method.

Dr. MILLIGAN said anybody, who had had experience of the radical mastoid operation, must realise that the extreme difficulty was getting the bone surface covered with epithelium. Before Mr. BALLANCE'S improvement, the meatus had to be packed continuously for periods of four or five months, at the end of which time one might succeed in getting the whole cavity lined with epithelium. In Mr. CHEATLE'S case, as Mr. BALLANCE had pointed out, there was a large surface of tissue unhealed, and he noted particularly in one of the cases which had been done three weeks ago, that, in the apex of the triangle, tissue was

beginning to sprout out in the form of granulation-tissue buds. The value of Mr. BALLANCE'S suggestion could not be over-estimated, because by that method of grafting the most vulnerable parts were quickly covered over with epithelium; he meant the inner wall of the middle ear, over the promontory. He had had the pleasure of seeing one or two of Mr. BALLANCE'S cases, and the results in them were simply astounding. Mr. BALLANCE'S improvement was an immense advance in the treatment of mastoid disease, and one which, as time went on, and they became more familiar with the technique of the operation, should revolutionise the treatment of mastoid disease. Mr. CHEATLE'S results were good as far as they went.

The PRESIDENT said he agreed with every word uttered by Dr. MILLIGAN. It must be remembered that a considerable number of the cases never healed at all.

Mr. WAGGETT asked Mr. BALLANCE whether, in his preliminary investigations, he had tried grafting with small pieces of skin in the old-fashioned way. That, of course, was not so good as the procedure mentioned by Mr. Ballance, but it could be performed more easily and without a second operation.

Mr. BALLANCE replied that he had used small grafts, though they were not taken from the patient, but from another patient who was under an anæsthetic in the theatre. Of course one had to be careful in grafting from one patient to another, and the grafts were kept in a warm saline solution. But that was not comparable at all in results with the method in which a large graft was taken. He was of opinion that grafts for a raw surface of bone, removed from another patient, were not so likely to take as grafts taken direct from the patient himself.

A man with a perforation in Shrapnell's membrane and cholesteatomatous formation.

By St. Clair Thomson.

The man had had a very offensive discharge from one ear for six years. He was found to have a small moist perforation in the antero-inferior segment, and another in Shrapnell's membrane. The discharge from this had been nearly entirely arrested by ordinary cleansing treatment, but the Shrapnell perforation was seen to be filled with cholesteatomatous material, which on removal was still offensive. The tuning-fork was well heard by bone conduction, but neither the watch nor a loud whisper was audible. He thought therefore that the patient could lose nothing in the way of audition by an operation, but might gain, while he would be freed from the risk of this infective centre. He, therefore, invited the opinion of the Society as to whether he should not begin with ossiculectomy before proceeding to a more radical operation. It had been suggested that the case should be left alone.

Mr. Cheatle said he would not advise leaving it alone. There was cholesteatoma behind the posterior segment. He advocated removal of the membrane, ossicles and outer attic wall, and if this was not sufficient the complete mastoid operation. He thought the hearing would also be improved.

Dr. Milligan asked whether Dr. Thomson could detect any caries, to which Dr. Thomson replied in the negative.

Mr. Ballance recommended the removal of the ossicles and outer attic wall, to be followed by the complete post-aural operation if these measures were not effectual.

Spontaneous exfoliation of part of the petrous bone in a child aged 3 years.

By W. C. Bull.

Mr. Bull said the piece of petrous bone exhibited was spontaneously exfoliated from a child three years of age, and was not, so far as he knew, due to scarlet fever or any other disease. The tympanic cavity and the attic cavity were one, and the ear was now perfectly healed, no facial palsy being left. Nothing surgical had been attempted, and it was a case of complete operation by Nature.

Mr. Ballance said he supposed it was one of tuberculous disease. He had taken away the whole petrous bone as a sequestrum in tuberculosis.

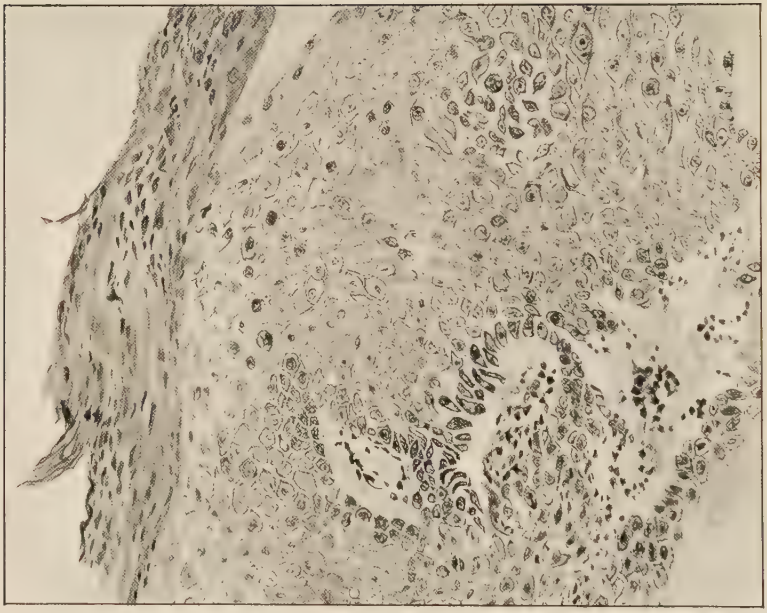
Mr. Bull replied that there was no evidence of tuberculous disease about the case. He took away two little scales which were lining the meatus, and he kept the part clean, the piece of petrous bone coming out quite spontaneously. The cavity was quite smooth and dry.

An elderly woman with a papillomatous growth in the meatus.

By L. A. Lawrence.

Mrs. H., *æt.* 70, first seen September 1899. The left meatus was then blocked by a red papillatic growth bathed in a very foul-smelling discharge. The ear had "troubled" the patient for about one year. Pieces were removed with a cold snare, and chromic acid applied on several occasions, and directions were given for keeping the ear clean. Under this treatment, the case was improving and the growth gradually diminishing. It was now possible to see part of the membrana tympani and to determine the position of the growth. It sprang from the posterior wall of the meatus quite near the

Fig. 5.



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Papillomatous growth of the meatus.

Mr. LAWRENCE's Case.

external opening. A section of the growth exhibits some very fine prickle cells and some of the characteristics of a papilloma.

Mr. CHEATLE said it looked very nasty, and might be malignant. He would operate upon it as soon as possible by turning the auricle forward.

Specimens of the recess under the Fallopian aqueduct, and of a recess outside the pyramid.

By ARTHUR H. CHEATLE.

Mr. CHEATLE said that attention to this recess, from a surgical aspect, had been drawn by Mr. CHARLES BALLANCE in his paper at the Royal Medico-Chirurgical Society. Mr. CHEATLE showed specimens from fœtal to adult life, demonstrating the recess which, he stated, had been previously described by Steinbrügge, and named by him the "sinus tympani." It was important, if the space was to be surgically dealt with, that its anatomy should be clearly known.

The space (Fig. 6) is bounded anteriorly by the promontory, the posterior crus of the stapes, and the round window; externally by the pyramid, which is joined to the Fallopian aqueduct. The Fallopian aqueduct arches over the top of it after passing over the oval window. The recess occasionally runs upwards and backwards under the aqueduct, sometimes for a considerable distance, and is crossed by the tendon of the stapedius muscle and, not unfrequently, by a spicule or ledge of bone which runs from the pyramid to the promontory above the round window. The floor is sometimes formed by the jugular fossa, which may be so thin as to be translucent, an important fact to remember when surgically cleaning the space.

Another recess (Fig. 7), which, as far as Mr. CHEATLE knew, had not been described, exists as a rule outside the pyramid, and has a definite developmental origin.

On examining a specimen at about the eighth month of

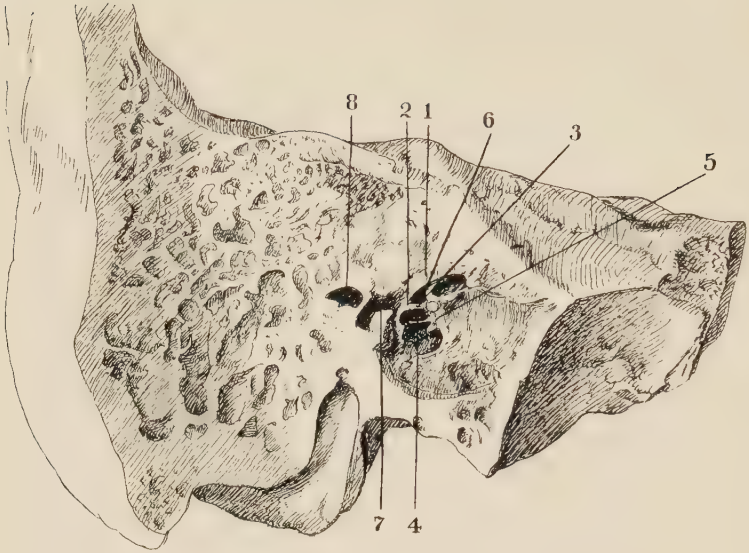
fœtal life, after separating the squamous and tympanic portion, a rather large space or recess will be seen outside the pyramid below the antrum, immediately in front of the mass of bone from which the mastoid process is ultimately developed. It will also be seen that the posterior portion of the middle-ear floor curves upwards, ending blindly, its inner edge being attached to the pyramid, this up-curving portion converting the lowermost portion of the recess into a pocket. This arrangement can be often seen in the adult bone. The recess may run outside the Fallopian canal for some distance and may occasionally communicate with other cells behind, as seen in Figs. 6 and 7, coming in very close if not direct connection with the mastoid cells or antrum. Occasionally it dips downwards for some distance. It may be represented by two or more cells, or as a slight ledge; so that, if the posterior wall of the middle ear is examined, two pockets or recesses, one on either side of the pyramid, will as a rule be seen.

Sometimes, in life, a probe, if properly curved and passed along the posterior wall, will dip backwards, and it is the outer recess into which it passes.

This outer recess is of importance: as a possible pathway of infection to the mastoid process, as a cavity which requires dealing with surgically, and on account of its relation to the facial nerve.

Mr. Ballance said he had described the recess from the surgical point of view, and no one had previously alluded to the surgical importance of it. Mr. Cheatle had admirably described the situation of the space, and had shown that it passed underneath the aqueduct and appeared sometimes on the other side. He (Mr. Ballance) remembered one case in which he passed a probe underneath the aqueduct. The anatomical characters of the recess, when full of infective granulations for a long time, were probably different from a normal recess. When the cavity was distended with granulations it encroached on the Fallopian aqueduct, and so exposed the facial nerve.

Fig. 6.



A curved section through mastoid and antrum, exposing the inner wall of the middle ear. Right adult bone. 1. Fallopian aqueduct. 2. Pyramid. 3. Stapedius muscle. 4. Spicule of bone. 5. Promontory. 6. Sinus tympani. 7. Recess outside the pyramid. 8. Cell communicating with 7.

Fig. 7.

Section through mastoid process, antrum, middle and internal ears. The wire marks the course of the facial nerve. Right adult bone. 1. Pyramid. 2. Recess outside the pyramid.

THIRD ORDINARY MEETING.

MONDAY, *May 7th*, 1900.

THE PRESIDENT, SIR WILLIAM DALBY, IN THE CHAIR.

The following gentleman was elected a Member of the Society:

HARRY LAMBERT LACK, M.D., F.R.C.S., 48 Harley St., W.

The following gentlemen were nominated for election:

HAROLD L. BARNARD, M.S., F.R.C.S.
GEORGE CLARK CATHCART, M.A., M.B., C.M. (Ed.)
WILLIAM PERMEWAN, M.D., F.R.C.S.
EDWARD FURNISS POTTER, M.D. (Brux.)
PHILIP R. W. DE SANTI, F.R.C.S.
ARTHUR LONGLEY WHITEHEAD, M.B., B.S., F.R.C.S.

A case of epithelial grafting of the labyrinth after removal of the semicircular canals.

By CHARLES A. BALLANCE.

E. M., *æt.* 54, admitted St. Thomas's Hospital February 5th, 1900.

History.—Left otorrhœa since childhood. Admitted to St. Thomas's Hospital May 7th, 1898, with large mastosquamous abscess, foul otorrhœa, and inability to walk without assistance in consequence of vertigo. Operation was performed, but the bridge and outer wall of attic were not removed. Since this operation the vertigo has continued.

Present condition.—Scar over mastoid. Foul left otorrhœa. Vertigo so bad that she cannot walk at all without assistance. Loud and distressing tinnitus. Tuning-fork not heard left side.

February 6th, 1900.—Complete mastoid operation. Behind the tuberosity a sinus was found leading into the petrous for half an inch, and from it pus was oozing. The petrous was removed till no further sign of pus was discoverable. In doing this, the semicircular canals were in part destroyed and the back of the vestibule opened. Clear fluid escaped. The cavity in the petrous at the conclusion of the operation was about five-eighths of an inch in depth, and in size would have taken half a Barcelona nut. It was repeatedly swabbed out with absolute phenol. For several days the patient was very sick and giddy.

February 17th.—Epithelial grafting operation. On throwing the flap forwards clear fluid was seen flowing from the cavity in the petrous. (Sir WILLIAM DALBY and Dr. DUNDAS GRANT present.)

February 19th.—No sickness and no vertigo since grafting operation.

February 22nd.—Plug removed. Patient at once said she could hear well.

March 20th.—Healing has been complete for some days, and patient can run down the ward. There is no vertigo, and the tinnitus has ceased.

The hearing has returned in a marvellous way.

Three weeks after the operation my watch could be heard at six feet, and a whisper at at least twenty-five yards distance. For three or four weeks this amount of hearing continued, and since then it has deteriorated. It is now as follows: Watch, ten inches; whispering voice, eight feet.

I take it that the layer of blood-clot (however thin it may have been) underneath the graft has been absorbed and replaced by fibrous tissue, and that now this tissue is contracting and becoming more rigid. Hence the sonorous vibrations are not so readily transmitted to the labyrinth as they were six weeks ago. Nevertheless, she still hears remarkably well, and may it not happen that months hence, when the scar-tissue loses its rigidity and becomes softer and more supple, a return to the stage of almost perfect hearing which was the result of the operation may occur?

The case illustrates—

(1) the success of epithelial grafting after the complete mastoid operation;

(2) the function of the semicircular canals; and

(3) the boundless possibilities of epithelial grafting when applied to the labyrinth for the cure of deafness.

The PRESIDENT said the case was an exceedingly remarkable one, and no one who merely listened to the facts of the case without having seen the patient could have any idea of the profound impression it had made upon those who had seen it. The woman was absolutely deaf, and it was as impossible for her to walk across the room as to fly out of the window. Yet she had recovered her equilibrium, and now heard exceedingly well. The dream of one's life had been to treat successfully difficult cases of old chronic catarrh with deafness and increased tension. They would remember how constantly everything had failed, beginning with the old operation of dividing the tensor tympani, and continuing with the suggestions of HINTON, who worked extremely hard to find a means of relieving the tension and restoring the hearing; and thence to the work of others, who had taken the membrane completely away. In some cases while the membrane was away the hearing had been good, but nothing seemed to stop the reproduction of that membrane. He remembered a certain proportion of cases in which, at the moment of opening the tympanic membrane, hearing became quite perfect; he had seen many such cases, but never one where the hearing remained perfect, because the artificial perforation healed up and the tension returned. Another point was that in some of the cases the tension on the labyrinth was not removed, but the tension on the membrane was; but that only occurred in a small number of cases. By Mr. BALLANCE'S method, labyrinthine pressure had been removed at once and entirely, and the patient heard perfectly. The procedure of Mr. BALLANCE opened up, he believed, an enormous field for the future. It represented, perhaps, more than some of them would live to see, but some day persons

who were intensely deaf would be made to hear. He would be glad to hear the opinions of members of the Society.

Dr. URBAN PRITCHARD said he agreed entirely with what the President had said, and he could not help thinking they had had some light thrown on the difficult question of treatment of those cases. They had all thought how grand it would be if they could remove the tension in the labyrinth, and thereby not only improve the hearing but also get rid of some of those terrible noises which in some cases nearly drove the patient mad. Mr. BALLANCE had shown that they could operate on the labyrinth by taking away a portion of the outer wall and then grafting on it. He would like to know if Mr. BALLANCE removed the stapes.

Mr. BALLANCE replied that the stapes was not seen.

Dr. MILLIGAN said he had seen the patient while under Mr. BALLANCE'S care at St. Thomas's Hospital, and he would like to congratulate Mr. BALLANCE on the very admirable result. His manipulation imparted two very striking lessons: it showed what could be done by a properly designed and executed grafting operation; and it showed, in the second place, that the structures of the labyrinth could be approached without damaging the function of the organ. Ever since Mr. BALLANCE had introduced his grafting operation, he (Dr. MILLIGAN) had thought the procedure could be adapted to cases of dry catarrh of the middle ear, and for certain cases of post-suppurative fixation of the stapes to the margins of the foramen ovale. Accordingly, on three occasions, in advanced cases of dry middle-ear catarrh, in which long previous treatment had been tried, he had operated and found results which, though not particularly good, promised more benefit in the future. He would not now go into the details, but he performed a radical mastoid operation, precisely as for a case of suppurative disease, and having exposed the middle ear thoroughly he removed the ossicles entirely, including the stapes, and all the lining membrane of the inner wall of the middle ear, and of the promontory. The first case was a complete failure, as he altogether missed his anatomical landmarks. In the second case, from which he showed the

specimen, the foot-plate was so ankylosed to the margins of the foramen ovale that he did not succeed in bringing the stapes away entirely. The same happened in the third case; the foot-plate of the stapes was so embedded in fibroid ankylosis that the margin connecting the arms of the stapes broke away from the foot-plate, and he had to burr away the foot-plate of the stapes and the surrounding portion of the promontory. By so doing the vestibule could be exposed, and a path was afterwards provided for the direct transmission of sonorous vibrations to the internal ear. The final treatment consisted in cutting the graft, as Mr. BALLANCE had indicated for suppurative cases, and applying it at the first operation. In the third case the graft had healed, and the hearing had been somewhat improved—he would give the exact figures on a subsequent occasion. The marked tinnitus had been to a very great extent relieved. Mr. BALLANCE'S method was undoubtedly very valuable for suppurative cases, and he (Dr. MILLIGAN) thought it might also be used for advanced dry chronic middle-ear catarrh, and, when the technique was more perfect, he expected good results from it.

Mr. HUGH JONES (Liverpool) said he had tried what he understood to be Malherbe's operation, which was described at the last International Congress of Otology, for chronic catarrh. He had only done it in one case, but had not been able to trace any improvement from it at all. There was no tinnitus nor giddiness in his case, but the deafness was very extreme. The operation consisted in hollowing out the mastoid and the meatus. He went further and did a post-aural operation, but did not venture to interfere with the stapes—the old method, without any epithelial transplantation. The result was extremely disappointing, though the patient thought there was some improvement.

Mr. CHEATLE joined in the congratulations on Mr. BALLANCE'S and Dr. MILLIGAN'S operations. Mr. BALLANCE had shown that the posterior labyrinth could be opened with impunity, and Dr. MILLIGAN that the vestibule could be opened with equal safety. He thought that Mr. BALLANCE'S post-labyrinthine operation would come into vogue in all

cases characterised by giddiness and tinnitus, and where there was increased tension in the posterior labyrinth, such as in Menière's disease as well as in syphilitic cases associated with giddiness, and indeed in all cases where there was tension. But in cases of chronic dry catarrh, he did not believe there was any increased tension, as stated by the President; operative measures were undertaken to allow the sound-waves to reach the auditory nerve and to get past the obstructions which existed at the oval window. He (Mr. CHEATLE) thought the labyrinth could be trephined through the promontory by the meatal route. Regarding Mr. BALLANCE'S expectation that the patient would have further improvement in hearing as the scar-tissue got more supple, he (Mr. CHEATLE) thought it would rather get harder, and that hearing would get worse.

Mr. WAGGETT said, with regard to heightened tension, would it not be advisable, before interfering with the patient's petrous bone, to relieve tension by tapping the round window and the cochlea? It was a very simple thing to do, if the operator cared to run the risks of sepsis. He thought that should always be done before attempting the operation which Mr. BALLANCE had devised.

Mr. CUMBERBATCH thought Mr. BALLANCE'S operation opened up great possibilities. Regarding Dr. MILLIGAN'S suggestion, cases of dry catarrh were the bane of their special branch of the profession, and the difficulty was to settle, in cases of dry catarrh, whether the labyrinth was involved or not. He did not believe it was a matter of tension, and he thought it was almost impossible to tell, in cases of advanced deafness, whether the labyrinth was involved. The tuning-fork was not a certain guide. There might be loss of inter-osseous conduction, which might be due to tension, because there was ankylosis of the foot-plate of the stapes and thickened scar-tissue. On the other hand, there might be advanced changes going on.

Mr. CHEATLE asked Dr. MILLIGAN whether his patients heard better in a noise; if so, was there any change after the operation? He thought some light might be thrown on the

causation of the phenomenon through these operative measures. He had an idea that the phenomenon was connected in some way with the intra-labyrinthine fluids, perhaps deficiency.

Dr. MILLIGAN replied that they had hardly had an opportunity of being tested in that way.

Dr. MACNAUGHTON-JONES said it should first be decided whether the condition was due to tension at all. They could hardly refer to tension, those cases of labyrinthine-like vertigo or other symptoms associated with affections of the labyrinth due to secondary adhesions, to effusions, or to the organised conditions with which they were familiar. One of his great difficulties in dealing with labyrinthine cases was to say whether the case was one of effusion or one of complete organic change within the endolymph.

Dr. DUNDAS GRANT thought the vertigo was due to sudden variations in tension; very often the diseases affecting the windows and making them stiff produced vertigo, because there were variations in the circulation and in the arterial pressure in the interior of the labyrinth, which variations were not compensated by the yielding on the part of those windows.

With regard to the semicircular canals, he thought Mr. BALLANCE'S cases went to support very strongly a somewhat sweeping assertion or generalisation that he had come to—viz., that, in health, the semicircular canals were of very little use, probably they were more vestigial than anything else; but that, in disease, they were capable of producing enormous disturbances, so that, on the whole, they would be better without them.

In reply to Mr. FAGGE, Dr. GRANT said he thought the semicircular canals were infinitely more complex in the lower animals than in man.

Mr. BALLANCE, in replying on the discussion, said it was useless to talk of tension until they could measure it; they knew nothing of tension in the internal ear. He was surprised that no one asked whether his patient was not really hearing through the fenestra, into which he put a probe.

That was a very nice question, and he would not like to say she did not hear through the fenestra ovale; but this was the only case, after grafting, in which such perfect hearing had been obtained, and moreover the vertigo disappeared. With regard to the labyrinth, he did not think it was a question of tension at all. When a patient became deaf from chronic dry catarrh, or from post-suppurative conditions, the wall of the vestibule did not allow the sonorous vibrations to pass through. Hearing had been improved by both his and Dr. MILLIGAN'S operations. In post-suppurative and chronic dry deafness what they had to consider was not an unknown quantity, such as tension, but the removal of a portion of the wall of the labyrinth, and the covering over of the opening with something which would allow of the passage of sonorous vibrations to the auditory nerve.

A case of sarcoma of the temporal bone, causing paralysis of the 7th, 8th, 9th, 10th, 11th and 12th nerves. Operation.

By CHARLES A. BALLANCE.

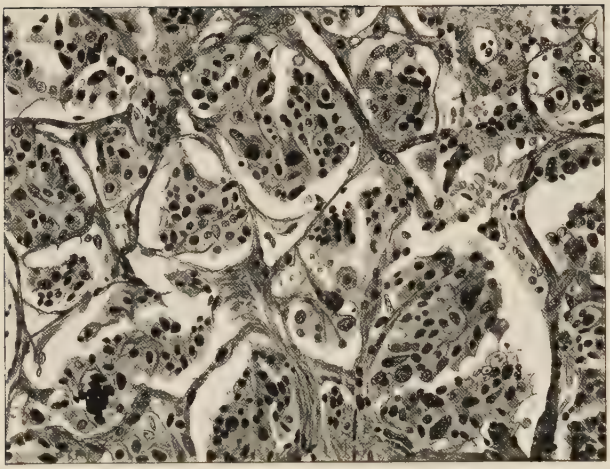
S. C., *æt.* 32.—Admitted to the National Hospital for the Paralysed and Epileptic, Queen Square, February 7th, 1900, with left facial palsy, severe pain in ear and head, and difficulty in swallowing.

History.—Clear history of syphilis at age of twenty-six. Six healthy children previously.

Present illness.—Two and a half years ago, paralysis left side of face. For four months, severe pain in ear and left temple. In six weeks, voice hoarse and difficulty in swallowing. Occasionally, matter and blood have come from left meatus.

Present state.—Left ear absolute deafness. Polypus fills meatus and presents in concha. Slight foul discharge around it. No mastoid signs. Complete left facial palsy. Left side of tongue taste absent. Difficulty in swallowing; fluids regurgitate through nose. Nasal voice—Paralysis of L. half of palate. Left side of pharynx insensitive. Complete

Fig. 8.



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Alveolar sarcoma of temporal bone.

Mr. Charles A. Ballance's Case.

paralysis left recurrent laryngeal: left cord in cadaveric position. Left side of tongue wasted. Tongue protrudes to left. Complete paralysis of left trapezius and complete paralysis of left sterno-mastoid with atrophy.

The sêvere neuralgic pain in left ear and temple was not relieved by drugs or by anti-specific treatment.

The diagnosis rested between three conditions:

(1) Otitis media with polypus and syphilitic inflammation of the membranes of the brain, involving certain cranial nerves.

(2) Otitis media with polypus which had extended through the petrous, and, via the internal auditory meatus, had reached the nerves passing through the foramen lacerum posterius and the anterior condyloid foramen.

(3) Tumour.

March 9th, 1900.—Operation. On removing the superficial cortical layer of the mastoid a tumour was found which had destroyed the mastoid and petrous bones and was continuous with the meatal polypus. The tumour was rapidly enucleated as far inwards as the apex of the petrous. Very considerable hæmorrhage occurred, but neither the internal carotid artery nor the lateral sinus was opened as far as I know. The growth was adherent to the dura in the region corresponding to the anterior and posterior surfaces of the petrous.

The operation was most successful, as the patient has had no return of pain since its performance.

The growth was an alveolar sarcoma, and probably commenced in the cancellous tissue of the mastoid.

May 7th.—No pain. No discharge.

Dr. Dundas Grant said the case raised the question whether, having diagnosed sarcoma or epithelioma, operation should or should not be performed. It had fallen to the lot of almost every aurist to operate on the mastoid for sarcoma or epithelioma simulating mastoid disease. Published histories of such cases showed that very great benefit had been caused by the operation. Some time ago, he had a

gentleman under his care who eventually was found to have epithelioma starting in the posterior wall of the meatus, and from there invading the mastoid. It so accurately simulated mastoiditis that he operated. He found the mastoid filled with tissue, which he thought was sarcoma. He scraped it out and it was found to be epithelioma, but the relief to the patient was more than a compensation for the discomfort of the operation. He died, eight months after the operation, from infection of the temporo-spheroidal bone.

A case of epithelioma of the meatus in a man aged 43 years.

By Arthur H. Cheatle.

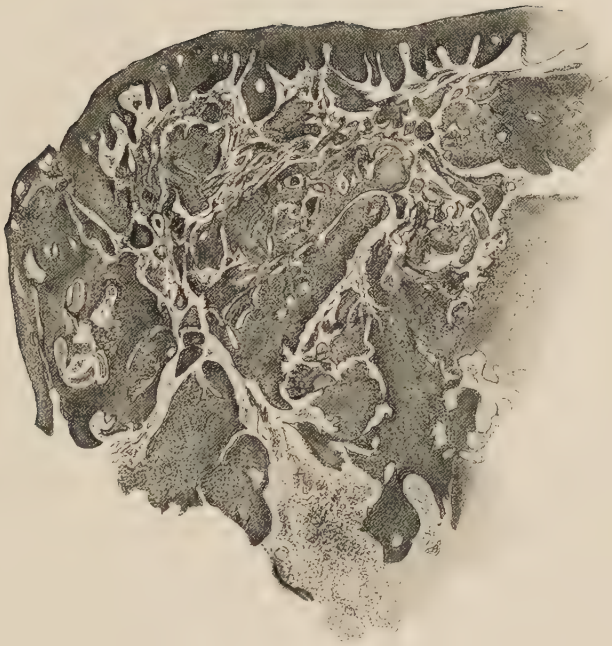
There was a history of a discharge from the ear of a few months, followed by great pain, and there was an ulcer in the floor and anterior wall, with a most offensive discharge. A piece was taken off and was found to be epithelioma, but the patient refused operation. Four months afterwards he returned to hospital seeking operation, and then had facial paresis and enlarged glands in front and below. The epithelioma had gone through the anterior meatal wall and was involving the parotid region and the middle ear. The question was whether any operation should be done. He (Mr. Cheatle) thought that it was hopeless to try and get rid of the disease, and that, if attempted, it would kill the patient.

Dr. Milligan said he would be very indisposed to operate on the case.

Dr. Bronner thought operation should be tried, because of the intense pain such patients suffered towards the end. He had had several cases on whom successive operations had been done, by which life had been prolonged and pain relieved. In his last case he had tried the application of formaline with benefit.

Dr. Urban Pritchard said he had a man with epithelioma, who suffered a great deal of pain, and the bone was opened from behind, with great relief.

Fig. 9.



× 20.

Epithelioma of the meatus.

Mr. Arthur H. Cheatle's Case.

Dr. HILL said pyoktannin had been used in these cases by Mr. WILKIN in this country.

Mr. WAGGETT said the case alluded to by Dr. HILL had not derived much good from the pyoktannin; but Mr. WILKIN had found it relieved pain in one case and produced absorption of the growth.

A case of chronic middle-ear suppuration with loss of the head of the malleus, the incus, and the head and crura of the stapes.

By ARTHUR H. CHEATLE.

The title described the case.

A case of ossiculectomy after eighteen years otorrhœa. Cure.

By C. H. FAGGE.

P. H. H. P., *æt.* 24.—Had measles when six years old, since when he has had much discharge from the left ear, which was very bad when he was about eleven; he then saw a specialist, who, he thinks, removed something from his throat, and the discharge for a time was less, but continued.

Until he was eighteen it always ran on to his pillow during the night, but for the last six years he has seen none there, and has only noticed a moisture in the meatus in the morning.

He has not had earache for years, until 1899, when he had three attacks of two or three days duration each. He says "caseating material" used to come away after the attacks. He has had tinnitus as long as he can remember in the left ear, with no giddiness except after syringing. Patient has always been slightly deaf in that ear, which has been a little worse for the last year. He has been inflating the Eustachian tubes rather frequently, because he noticed it

improved the left ear, and thinks he may have made it worse by so doing. He has noticed occasional moisture in the right meatus for about a year.

With regard to treatment, he has syringed the left ear at varying intervals and with varying frequency ever since the measles in 1882. He is now using chinosol, and has used carbolic acid, boracic, and sanitas. Patient is a perfect lip-reader when any one talks to him to his left side; he has gradually taught himself. He does not think the hearing of the left ear is any worse in the last six years.

First examined November 3rd, 1899.

Left meatus full of pus, removed by syringing and mop. The membrane is replaced by granulations in its upper and posterior part, and pus is seen to be coming from this area, as if descending from the attic.

Right meatus normal; membrane slightly retracted; no cicatrices: immobile to Siegle's speculum.

$$W. = \frac{\text{Rt. 3 in.}}{\text{L. 1 in.}} \text{ Politzer's bag. } \frac{\text{Rt. 4 in.}}{\text{L. 1 in.}} \text{ F. both B. } > \text{A.}$$

Nose—spur to left; good passage.

Naso-pharynx—a very small adenoid stump seen with mirror; no catarrh.

November 18th.—Has been using chinosol $\frac{1}{400}$ since last visit. Left ear is now clear; discharge better seen to come from attic.

December 27th.—Patient has been seen several times lately, and discharge has not become less since November 18th. Tinnitus continues. Both Eustachian tubes are open naturally, and hearing has improved on the right side. Ossiculectomy (malleus and incus) performed to-day in Bright Ward under A.C.E. with careful antiseptic precautions both before and during operation. Packed with sterilised gauze. Wound repacked on fourth and eighth days.

January 11th, 1900 (*fifteen days after operation*).—Gauze introduced a week ago is quite dry. W. = L. 5″. A wool plug was inserted; no further packing.

January 18th.—Quite dry; no further treatment. Politzerised W. = 10″.

April 19th.—W. = L. 2″. The ear has remained quite dry ever since the operation, and tinnitus is entirely absent. There is seen to be an opaque membrane on inner wall of middle ear over posterior inferior part.

The removed ossicles show caries of the head of the malleus, and removal by caries of the descending process of the incus (shown as a card specimen).

A case of functional nerve deafness.

By C. H. Fagge, for W. Laidlaw Purves.

J. B., *æt.* 21.—Has been attending Guy's Hospital, under Mr. Laidlaw Purves, to whom I am indebted for permission to show the case, since February 1896.

A week before her attendance she had a "bilious attack," and a few days later became suddenly quite deaf. Her mother says she hears nothing; she attributes it to taking eucalyptus for a cold. No other symptoms of any sort.

I am sorry to say that one or two of her earlier letters have been mislaid.

When I first saw her in 1899, her membranes were normal, both Eustachian tubes were open to Valsalva; she does not hear the watch at all, nor the large C tuning-fork either, on the mastoid. She has noises like running water in her ears, no giddiness now or earlier; no paraceusis.

Nose and naso-pharynx normal.

Optic discs normal.

No affection of any other cranial nerve, motor or sensory.

She has been treated chiefly with drugs: Liq. Strychninæ ♏v. t.d.s. Syr. Fer. Phosph. Co. ʒij. t.d.s. Assafœtida, etc.

She improved a good deal in July last, so that, although she could not hear the watch or conversation, she heard the large fork on her mastoid with a loss as compared with the normal of about 40 seconds. Rinné was positive. She is a good lip-reader, by which means she understands her mother.

In September 1899, she relapsed, and now she is in much

the same condition as above. Recently she has been under the care of a physician, and had attended under Dr. BRYANT in the electrical department with very little benefit.

There is no definite history or signs about patient of congenital syphilis.

Though mother has had four miscarriages previous to patient's birth, all others, father and mother, are healthy. Patient has attended the Guy's ophthalmic department, and no lesion of the eyes suggestive of congenital syphilis has been reported.

Mr. CHEATLE said he had come to the conclusion that it was a case of congenital syphilitic deafness. Her eyes were not as they should be, and she had had severe giddiness some years ago. She had a monotonous voice, which would not occur in functional deafness and this together with the lip reading showed that the deafness was of long standing and due to internal ear deafness. Her mother stated that she had had frequent miscarriages.

Dr. DUNDAS GRANT agreed with Mr. CHEATLE about the case.

Mr. FAGGE said, with regard to the diagnosis of syphilis in his case, the patient had attended Guy's Hospital, where it was found there was no interstitial keratitis, iritis, or changes in the fundus. Another point was that last year she improved greatly, and could hear a delicate fork through the meatus, and the result was Rinné + at that time. The condition came on after a so-called "bilious attack."

Mr. CHEATLE said he still thought the case was syphilitic.

A case of old-standing perforation in the membrana tympani healed by the application of trichloracetic acid.

By DUNDAS GRANT.

Miss S. came under my care on April 22nd, 1899, on account of dulness of hearing. She had suffered from deafness since she was attacked with smallpox in infancy.

There was found in the left ear a small reniform perforation surrounding the tip of the handle of the malleus, the edges of which were thick and dry. By about a dozen applications of trichloracetic acid, at intervals of about a fortnight, the perforation was got to heal entirely over, and there was a distinct improvement in the hearing power.

Dr. MACNAUGHTON-JONES said that for twenty years he had tried the remedy and published his opinion about it at the time, viz., that it was one of the best agents for chronic perforation and for small vascular growths. He was not aware that there was anything new about it.

Mr. BALLANCE asked what trichloracetic acid was, and what was the theory of its action.

Dr. GRANT, in reply, said he could not give the chemical formula for trichloracetic acid. They were crystals which were extremely deliquescent, and the deliquesced liquid applied to the edge of the perforation seemed to stimulate the callous edge of the perforation to new growth. One could see the new vessels shooting out like vessels in pannus. At the same time, he believed it had an antiseptic action. He confessed there was nothing new in the application, but thought every agent which was useful should be testified to by as many as possible.

A case of closed meatus arising out of chronic otitis media.

By H. MACNAUGHTON-JONES.

The patient, aged 26, was first seen in November 1897, when she consulted me for deafness and complete closure of the meatus of the right ear. She gave the following history: In childhood she had suffered from scarlet fever and diphtheria, which attacks were followed by deafness and discharge. The latter gradually ceased. The hearing always remained imperfect. In 1896, she was attacked with measles, and a considerable increase in deafness ensued. This was

due to the otitis media and the contraction of the meatus which followed the measles. Closure of the meatus then occurred, though an effort was made both to prevent the contraction and to enlarge the lumen of the canal. The new formation tissue, when I saw her, completely closed the meatus almost to a level with the orifice, and it had a thin cuticular covering.

Under anæsthesia I removed the dense tissue, coming down on a thin layer of bone or osseous material, in which there was an opening. On passing the probe through this, I found at a little distance an orifice which led into another rather large cavity, which I took to be the tympanum. With the curette I broke away the outer osseous partition, and on exploring the inner cavity carefully with a small curette, found that it was quite bare of mucous membrane, and that there was no soft material to be felt. I had now made a fairly large external passage, which I stuffed with iodoform gauze. No untoward symptom followed. The canal, despite persistent attempts to keep it open, contracted, and I then had a small silver-gilt tube made, which she wore. This I increased in diameter a few times.

In July 1898, I determined again to attack the outer portion of the meatus and enlarge it, but the attempt was followed by some pain and inflammation, and with little benefit. In August 1898, I used the galvano-cautery for the first time, and reinserted the tube, which she had for some time omitted to wear. She continued the use of the tube until July 1899, when, as it was then causing some irritation, I discontinued it. A thin membrane after a time formed and closed the orifice. This was followed by some pain in the ear and giddiness. On February the 9th this year, she came to London, and then, under an anæsthetic, with the galvano-cautery knife I removed all the encroaching tissue, leaving a fair canal. She has since been wearing a tube, and has comparative comfort. When she came to me in 1897, there was deafness to the watch, save on contact, also to the acoumeter, but the vibrations of the tuning-fork were heard at a distance of three inches. The hearing has lately some-

what deteriorated. She does not hear as well as she did for some time after the operation. She hears the watch on contact, and conversation fairly.

The PRESIDENT said nothing was more difficult than to keep the openings patent. His experience was that sheet-lead was the best substance for that, as probably Dr. MACNAUGHTON-JONES would agree. On the other hand, sheet-lead was difficult to make use of in the way of the smaller openings, which permitted sonorous vibrations. If the lady left the tube off for a period of some weeks, some day she would feel heat and discomfort and the part would close up again.

Dr. DUNDAS GRANT thought Dr. MACNAUGHTON-JONES and the patient ought to be congratulated on the result, and that it would be a pity to interfere further by operative means. Gilt-silver tubes was a very happy idea, especially after Mr. BALLANCE'S statement as to the superiority of gold-leaf over any other preparation.

Mr. BALLANCE said they could not form any judgment of the case without examining the inner extremity of the canal. If the part inside and along the canal was healed, he advocated leaving it alone. If the healing process was not complete, contraction would occur soon after the tube was removed, and he should without doubt recommend operation. He thought a closed meatus was one of the worst possessions a patient could be advised to retain.

Mr. CHEATLE said that, when Dr. MACNAUGHTON-JONES had kindly allowed him to see the case a short time previously, he thought the meatus would close if the tube was left out, and recommended that, if there was a discharge, the complete post-aural operation should be done, especially as at that time there was a cavity on the other side of the constriction. He would be inclined to do the complete post-aural operation with subsequent skin grafting.

Dr. MACNAUGHTON-JONES thanked the members for their advice, but he did not like to subject a patient who heard so well to an operation without stronger grounds than the problematical one that trouble might arise should the canal

close. As there was no evidence of sepsis, the discharge had ceased, and no pain was elicited on hard percussion of the mastoid, he decided to leave it alone.

Specimen and notes of a case of septic thrombosis of obscure origin involving the right lateral and the superior longitudinal sinuses, considered with reference to the patency of the petro-squamosal sinus as a causation-factor.

By Jobson Horne.

Dr. Jobson Horne said the case, the pathology of which he had under consideration, was one in which septic thrombosis of some of the venous sinuses of the cranium had been met with at the post-mortem examination, without any very conclusive cause being found to account for it. Although there were doubtlessly other theories that might be put forward in explanation of the thrombosis, he had brought before the Society the entire temporal bones, together with a report of the pathological and bacterioscopic investigation which he had made with a view to ascertaining whether a possible path of infection might have been the petro-squamosal sinus—a channel to which their attention had of late been redirected by the researches of Mr. Arthur H. Cheatle.*

The patient, a female child, aged 1 year and 5 months, was admitted to St. Bartholomew's Hospital under the care of Sir Lauder Brunton on the morning of February 19th, 1900, on account of convulsions.

The previous night, the child had had a fit in which the arms and legs became extended and rigid, and the eyes turned to the left and fixed; towards the morning the child had another fit; in this the spasms were more continuous and lasting, and the child was brought to hospital.

It was ascertained that there had been a similar fit about a

* Transactions of the Sixth International Otological Congress, pp. 160, *et seq.*

fortnight previously, but, apart from this, it was stated that the child had never had very much the matter.

On admission she was unconscious, the head somewhat retracted, the eyes were partly open, turned to the left and fixed, and the pupils reacted to light. Occasionally the right eye became centrally fixed, whilst the left eye was turned inwards. During the recurring spasmodic seizures the wrists were flexed, the feet were turned inwards with plantar flexure and rigidity. There were clonic spasms chiefly noticed in the extremities on the left side.

The pulse-rate was 150 and irregular; the respirations were 80, deep and vigorous. Examination of the chest revealed broncho-pneumonia, more advanced in the left lung; the ribs were beaded. The temperature on admission was 102° F. and rose to 102·8°, and then dropped to 101°.

The child died February 20th, at 9 A.M., twenty-four hours after admission. The post-mortem examination was made the next day by Dr. CALVERT, to whom Dr. HORNE was indebted for the following abstract from the report:—

The posterior seven-eighths of the superior longitudinal sinus occupied by an adherent ante-mortem clot, in parts breaking down into thick dirty greyish-white matter; ante-mortem clot also occupied the right lateral sinus and the torcular Herophili. The straight sinus was full of post-mortem natural-looking clot. The left lateral sinus was empty. The brain weighed 22 ozs.

The clot in the lateral sinus was breaking down, but on removing it no lesion of the sinus-wall could be seen. The clot extended beyond the jugular fossa for a little way into the jugular vein.

There were several hæmorrhages in the pia-arachnoid over the convexity of the brain, and the veins leading into the superior longitudinal sinus were for the most part occupied by ante-mortem clot. The hæmorrhage covered about three-quarters of the convexity; both motor areas were covered. A horizontal section exposing the centrum ovale minus showed all the sulci full of blood, and round them the brain matter was studded with points of hæmorrhage. A similar

section through the centrum ovale majus gave a similar but less marked appearance. A still lower section showed no hæmorrhage. The central parts of the brain were natural.

The left lung was very thickly set with disseminated collapse and broncho-pneumonia. In the right lung there was some broncho-pneumonia in the lowest lobe, and near the base an ante-mortem clot was found in an artery, and the part of the lung involved was infarcted.

The temporal bones were removed for further investigation, and these were shown to the Society. Neither presented any obvious lesion externally, and the dura mater lining them appeared natural.

In the right temporal bone, upon deflecting the dura mater from the middle and posterior fossæ, there was no evidence of extra-dural suppuration or inflammation, the tegmen and the bone generally being healthy in appearance. The petro-squamosal sinus was well marked in its entire extent, and the points of exit anteriorly in front of the meatus and posteriorly into the lateral sinus were obvious; a minute vein could be seen passing through the roof of the middle ear into the sinus.

Upon removing the anterior meatal wall the membrana tympani was found intact, but bulging in the posterior segment. The membrane, under all aseptic precautions, was punctured with a fine capillary pipette, and fluid resembling pus withdrawn. This was found under the microscope to contain pus-cells. Cover-glass preparations showed, besides other organisms, a diplococcus staining by Gram's method, and morphologically resembling the *diplococcus lanceolatus.*

Cultures were made from the fluid withdrawn from the right middle ear, also from the petro-squamosal sinus, the clot in the lateral sinus, and the breaking-down clot in the jugular bulb, all on the right side.

Cultures were also taken from the lung and the spleen.

At the end of twenty-four hours, colonies of diplococci (resembling the diplococcus pneumoniæ) had grown in the cultures made from the right middle ear, the petro-squamosal sinus of the same side, and the lung. The cultures from the

spleen were sterile, and in the other cultures various cocci were found, but no diplococci.

The diplococcus grown from the right middle ear was got out, in what appeared to be pure subculture, and this was injected into a mouse, but the animal died from other than a pneumococcus injection.

As regards the left temporal bone, there was no evidence of any extra-dural suppuration or inflammation, and the bone was quite healthy. The petro-squamosal sinus was not so well marked as on the right side; the external and anterior opening could be seen, but the posterior one into the lateral sinus was not present.

In the membrana tympani there was a large oval perforation and the middle ear was filled with thick fœtid pus.

Cover-glass preparations showed the diplococcus similar to that met with in the right ear, but the organism was not got out in cultures made from the middle ear and the petro-squamous sinus on the left side.

Both middle ears were therefore infected with a diplococcus resembling that of pneumonia, but, putting aside for the present, Dr. HORNE said, the question how the middle ears became infected, the question he more particularly wished to be considered was whether the septic thrombosis met with in the venous sinuses could be attributed to the aural condition, and, if so, had the path of infection from the middle ear been along the petro-squamosal sinus?

The facts in support of the suggestion were, briefly, (1) that the petro-squamosal sinus was more patent on the right side, the same side as the venous sinuses involved; (2) that the opening into the lateral sinus was present on the right side but absent on the left; (3) that the diplococcus found in the lungs and right middle ear was also present in the petro-squamosal sinus on the right.

If infection had taken place through the middle ear, a subsidiary question would arise whether it had been by the blood-stream or lymphatics. As against the former it may be objected that infection would have been carried in a direction contrary to the blood-current.

The whole question, Dr. HORNE considered, was still of the nature of an hypothesis, and without wishing to lay too much stress upon the arguments he had mentioned, he thought there were sufficient grounds to justify further investigation into the conditions under which the petro-squamosal sinus may be a pathological factor in some meningeal and cranial lesions.

In conclusion, Dr. HORNE expressed his indebtedness to Sir LAUDER BRUNTON for permission to publish the case.

Mr. CHEATLE said Dr. STILL had done much work on the condition of the middle ear in children, and he seemed to think that, as infective pus was so frequently found in the middle ear of infants, it was practically a normal condition. He (Mr. CHEATLE) did not agree with Dr. STILL on that point. The real test, he thought, was whether there was any change in the lining membrane of the middle ear under these circumstances. He (Mr. CHEATLE) showed a specimen from a child who had died of suppurative tuberculous meningitis, in which the right ear contained pus, just as in Dr. HORNE's case, and also in the cases reported by Dr. STILL. The membrana tympani itself was intact, but the lining membrane was considerably altered. He submitted that, if there were changes in the lining membrane, the condition was pathological.

With regard to meningitis in pneumonia, Dr. STILL thought that, if the pneumo-coccus was found in the meninges, it was secondary to pneumonia, although it might also be present in the ear. If there were the same organisms in the ear and meninges as in the sinus clot, in Dr. HORNE's case, he thought they must infer that the pathway was through the petro-squamosal sinus from the middle ear to the meninges. He thought Dr. HORNE's case was of the highest importance.

Mr. BALLANCE said that the ear of every child under five years, who had unfortunately come to the post-mortem room at the Children's Hospital at Great Ormond Street, contained muco-pus. In reply to Mr. CHEATLE, he did not give any

opinion as to whether muco-pus containing pathogenic organisms in the middle ear could be regarded as normal.

Two cases illustrating epithelial grafting after the complete mastoid operation.

By CHARLES A. BALLANCE.

1.—S. E., female, aged 56.—Admitted St. Thomas's Hospital, November 20th, 1899. (Case of Sir WILLIAM DALBY.)

History.—Measles in childhood. Left otorrhœa ever since. For some months pain, vertigo and tinnitus have interfered with the performance of work. Pain has been severe at times.

Present condition.—Œdema over left mastoid. Small quantity of offensive pus in meatus. Tympanum granulatory. Hearing by conduction only.

November 23rd, 1899.—Complete mastoid operation.

December 7th.—Epithelial grafting operation.

December 29th.—Healing complete.

May 7th, 1900.—Watch heard three inches; whispering voice, six feet.

2.—Mrs. P., *æt.* 31. (Case of Mr. CUMBERBATCH.)

History.—Offensive right otorrhœa since age of five. For some months headache, pain in ear and vertigo; and for same period marked mental irritability.

Present condition.—Slight amount of foul discharge in right meatus. Tympanum granulatory. No mastoid signs.

February 9th, 1900.—Complete mastoid operation. (Present, Mr. CUMBERBATCH, Professor CUNINGHAM, Mr. BULL.) For certain reasons second operation was postponed till

February 24th.—Epithelial grafting operation. (Present, Mr. CUMBERBATCH, Dr. MILLIGAN, Dr. FRANK, Dr. TILLEY.)

March 10th.—Healing complete, with the exception of granulation along cut edge of concha.

May 10th.—Hearing power: watch, one inch; whispering voice, six feet.

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